SUPPLEMENT TO WEEKLY BULLETIN
OF THE
DEPARTMENT OF TRADE AND COMMERCE

REPORT

ON

TIMBER IMPORT TRADE OF AUSTRALIA

BY

H. R. MACMILLAN
Canadian Special Timber Trade Commissioner

Published by authority of Rt. Hon. Sir George E. Foster, K.C.M.G., M.P.
Minister of Trade and Commerce

OTTAWA
PRINTED BY J. DE L. TACHÉ,
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
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Discharging lumber at Melbourne docks.

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PREFACE.

The serious decline of Canada's share of Australia's timber imports would at any time demand attention. That this loss of trade in raw products between two neighbouring British Dominions should occur at a time when Imperial sentiment is strengthening, when the move for closer Imperial trade relations is gaining favour, and should be most marked in a trade in which Canada not only possesses all the natural advantages, but in which she has greatly increased her productive capacity during the period of trade, is a matter of serious concern.

The investigation of which the following is the report, was undertaken with the idea of discovering the cause. The work of investigation was very greatly facilitated by the Canadian Trade Commissioner for Australia, who was indefatigable in rendering assistance and was thoroughly familiar with Australian business conditions.

Briefly, the chief obstacles over which Canadian timber trade with Australia has stumbled are,—

1. The channels of the trade are non-British.
2. The trade has been driven to death.

Canadian concentration on development of domestic opportunities has been such that no Canadian firms paid attention to building up a trans-Pacific timber brokerage and shipping business. Such business has been entirely in the hands of what are chiefly United States companies, and naturally they, finding a surplus or timber for export at their doors, found it no advantage to come to Canada for supplies.

Fortunately this condition shows signs of righting itself. Canadian companies, properly equipped to carry on a shipping business, are now entering the field, with results that cannot fail to be of benefit to Canada.

A tremendous overproduction of lumber on the Pacific coast, and the dumping of this lumber abroad under conditions of competition ruinous to many of the producers engaged in it, has resulted for several years from the unorganized state of the lumber industry. The competition has so flooded the Australian market from time to time that Canadian mills have not been attracted to foreign trade. A stronger organization of United States mills is now in effect, which promises to prevent lumber dumping.

The Australian market is a growing one. It will long continue to be second only to the Canadian prairie as an outlet for British Columbia lumber. It possesses an additional importance. Should Canada supply only one-half Australia's timber requirements, she will lay the foundation of a powerful merchant marine on the Pacific, which will in turn exercise a profound influence on the development of her ports and of subsidiary trading and maritime industries.

So long as there lies, across a few thousand miles of water, a sure market and that within the Empire, for all of Western Canada's most conspicuous and superfluous resources, so long should Canadian timber industries co-operate in supporting Canadian exporting and shipping interests to secure that market.

H. R. McMILLAN.

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Falling Karri Timber.

CHAPTER I.

Influence of Native Timbers on the Australian Market.

Australia has up to the present furnished the most important overseas market available for the forest products of the Douglas fir region. The total exports of lumber (almost wholly Douglas fir) from the North Pacific* to Australia during the period 1894 to 1915 inclusive was 2,230,000,000 feet.

Important as this consumption of Douglas fir may have been, it must be regarded only as the prelude to a steadily growing greater demand. During the period referred to, Australia was barely reaching the threshold of her intensive agricultural and industrial development. Meanwhile native forests of Australia and New Zealand have been so reduced by fire, logging and land clearing that they are no longer able to supply the needs of the population to the same proportionate extent as formerly.

The yearly imports of Douglas fir in Australia are now equal to the annual consumption of this wood on the Canadian Prairie. Although the Canadian Prairie consumption of Douglas fir may grow more rapidly than the Australian consumption during the immediate future, the underlying prospects for growth are such in Australia that the island continent should ultimately offer a greater market for lumber than may be expected on the Canadian Prairie.

A comparatively small area of Australia, along the southwest and east coasts only, is provided with merchantable timber. A large proportion of the original forest has been destroyed. Such merchantable forest as remains is considered by the Forest Departments in all States excepting Western Australia and Tasmania to be quite insufficient, unless assisted by importations, for the domestic demand for more than twenty years.

Limited in quantity the Australian forest is further restricted in its use in the domestic market, by the character of the timber and the high cost of logging and manufacture.

The forests of Australia are almost wholly mixed hardwoods belonging chiefly to the eucalyptus or gum and acacia or locust families.

The forests of Australia in districts rival Pacific Coast forests in size and clear length, of trees and amount of timber per acre. The karri trees reach a height of three hundred feet with a clear length of one hundred and eighty feet. Both the kerri of Western Australia, the messmate of Victoria and New South Wales, and the blue gum of Tasmania frequently produce one hundred and fifty to two hundred thousand feet per acre. Exceptional instances are recorded where karri has scaled three hundred and sixty thousand feet per acre.

Sixty or seventy species exist in commercial quantities, and all excepting jarrah and karri grow in mixed forests and all are rather local or limited in range. Jarrah and karri are the two chief export timbers. Jarrah because of its strength, durability, hardness and resistance to white ants has reached every market of the world for sleepers, paving and public works. Karri possessing the same qualities excepting durability has been extensively exported for railway, carriage building and industrial purposes. Other gums, ironbark and turpentine, strong, toredo resistant and durable, find an active export demand for piling and marine works.

The numerous species, while uniting in the common qualities of heavy weight and hardness, present a tremendous range of colour and natural working properties. Although many of the Australian timbers as indicated above are unexcelled for railway sleepers, wharves, piling, paving and industrial uses where great strength, hardness, durability and toughness are desired and where great weight is not an important

* British Columbia, Washington and Oregon.

disadvantage, none of them are so suitable as conifers for building and structural purposes. The chief factors tending to limit the use of native timber for building purposes in a country where popular sentiment is greatly in favour of the domestic product, are the great weight of nearly all Australian timbers, the expense and difficulty of securing them and handling them in long lengths and large sizes, the the tendency of all Australian woods to warp and check seriously, the difficulty of working Australian hardwoods as compared with imported soft woods and the large number of species and the extremely mixed character of the forests.

The large number of species in the forest, each requiring different seasoning treatment, has rendered it impossible for the small country mills, which produce almost all the domestic lumber cut, to properly market the timber. Although a few important species appear in several regions, each of the many lumber producing regions possesses a distinct group of species, all of which have been in the past put on the local markets unsorted, unseasoned and roughly manufactured. The consumer has not become familiar with any one species as a standard article. The method of marketing have forced him to look upon the domestic lumber as less reliable and less standardized than the imported softwoods. The unsuitability of the native hardwoods to fill all the needs of the community is well demonstrated in Western Australia. This state, with a population of 250,000 is in the pioneer stages of development. Such centres of population as are not actually within the merchantable forest area have this forest between them and the seaports. Nevertheless the community, one of whose chief industries is the manufacture of lumber, imports annually 60 feet per head per year of European and North American soft woods to be used for mining timbers, flooring, ceiling, freight trucks, rafters, roof battens and joinery. The native woods, though close at hand, and produced regularly in large quantities are unsuitable for many uses, too hard, too heavy, unkind to work, likely to warp or check. Elsewhere in Australia this condition is accentuated, the demands on wood are greater in variety, the native woods are more mixed in character, less efficiently marketed and higher in price in comparison with the imported article.

PREFERENCE FOR IMPORTED WOODS.

The temptation to use Douglas fir and other soft woods is so great, because of their light weight and splendid working qualities, that the workingman, carpenter or builder is always inclined to give them a preference. Thus a hotel built on a timber-covered mountain in Tasmania, miles from a railroad, surrounded by thousands of acres of merchantable native forest was found to have Douglas fir porch pillars, studding and rafters. The dry kiln attached to a native hardwood saw-mill one hundred miles in the interior of the State of Victoria was Douglas fir. Douglas fir entered into the building of the tanks in connection with the Government saw-milling and powellizing works in the karri forests of West Australia. Throughout Australia, on the basis of quality and suitability alone the imported softwoods, chief of which is Douglas fir, are increasing in use in competition with native woods.

Manufacturing and marketing methods, as applied to native woods, are however improving in Australia. The many small mills, only to be classed with Canadian portable or bush mills, which characterized the operations throughout the country are now being gathered up into larger amalgamations, handling lumber in such volume as to justify the sorting out of each important species for the manufacturing and seasoning to which it is best adapted, the installation of better machinery and dry kilns under the systematic marketing of a standard article. This increasing efficiency of the industry originated in the jarrah and karri forests of Western Australia where pure stands of these species extending over large areas simplified the problem. Success in this region is leading to improved manufacturing, seasoning and marketing facilities in Tasmania and Eastern Australia where the problem is rendered more difficult by the large range of species each requiring different treatment.

The lack of such manufacturing efficiency has so handicapped the use of the best of the Eastern Australian woods up to the present that even in those cases where public services, such as the railway work shops have desired to use suitable native timbers in quantities of one to two million feet per year, they have found it exceedingly difficult to be assured of a definite annual supply manufactured to the necessary grades and specifications. Like difficulties, experienced by other large buyers as well as by the railroads, have seriously affected the marketing of the best of the timbers and afforded opportunity for foreign competition.

The Government of the State of Victoria has installed state dry kilns and planing mills where the product of the local hardwood is seasoned and manufactured into standardized flooring at a fixed charge. The object is to provide a standardized native article for public works and to encourage private enterprise to put in modern seasoning and manufacturing plants. There are not over ten dry kilns in the whole of Australia.

SOFTWOODS OF AUSTRALIA.

The softwoods of Australia, which would afford the keenest competition to imported softwoods are very few in species and limited in range and quantity available for exploitation. Aside from a few square miles of Huon pine in Tasmania, Australian softwoods are limited commercially to comparatively small quantities of hoop pine, brown pine, Bunya Bunya pine and kauri pine. These trees do not find as wide a range of uses as the imported softwoods and do not exist in large enough quantities to exercise an important influence on markets. These pines are found chiefly in New South Wales and Queensland so scattered over inaccessible areas of country as to render their exploitation slow and costly. The total stand is estimated between three and four billion feet and the annual cut at two hundred million feet board measure.

The cost of producing timber is so great in Australia that in normal times both Douglas fir and Baltic spruce sell for less than the native woods.

The first element in the cost is the inaccessibility of the forests. The most accessible and the richest forest areas in Eastern Australia have been destroyed by fires and the ring-barking of the trees to improve grazing. The most important remaining forest areas are those of Western Australia, which are one hundred miles by rail from the coast and an additional three thousand miles by ocean transport from the important market of Eastern Australia, the seat of nine-twentieths of the population. The forests of Eastern Australia are on the average one hundred miles by rail from market, and taking Tasmania and Queensland into consideration a very large proportion of the timber after being railroaded to the coast must be transported by ship to the market at an ocean freight rate equal to one-half the normal freight from Vancouver to Sydney.

The units both of logging and manufacture have been small. There are very few driveable streams, and none of the hardwoods will float without assistance. This factor, combined with Crown lands legislation in the eastern states, which restricted the holdings available for any one mill to as small an area as one thousand acres and gave cutting rights on this area for seven years only (as is indicative of conditions in New South Wales and Victoria) has had the effect of rendering impracticable mills cutting over 15,000 to 20,000 feet daily capacity. Logging units for mills of this type could not be developed on the most economical scale. Naturally where the units of manufacture are so small, every charge, that of transporting logs to the mill, the product to the railroad, as well as sawing, remanufacturing, drying, and selling, is disproportionately high and in many important details of production the efficiency is below par.

The waste in manufacturing hardwood lumber in Australia is terrific. Few mills appear to realize on over fifty per cent of the log scale, and in many instances the waste on logs reaching the mills is sixty per cent. The waste is due to checks, defective heart, gum seams and pockets, poor manufacture and loss through checks and warps while seasoning in the yard.

Few mills in Australia can put lumber on the market for $35 per thousand and live. The average cost is made up as follows:—

Log at mill	$11 00
Sawing	11 00
Waste on log scale	6 00
Freight to market and selling	9 00
Total	$37 00

In many instances the cost reaches $45. These costs are for rough lumber and dimension. The likelihood is that, as forests now accessible are cleared, costs will increase unless labour charges should decrease.

Although the waste in producing Australian soft wood lumber is not so great as in the case of hardwoods, the average cost of production is quite as high. The softwoods are farther from the centres of population than the hardwoods of Eastern Australia, and transportation costs are consequently higher.

The indigenous timber of Australia, though expensive to produce and not so adapted to general use as the softwoods of Canada, are now cut annually in a volume equal to the 1914 cut of Douglas fir in British Columbia. The production of local timber in Australia has increased rapidly with the development of the country in recent years. The following table, which includes both hewn timber of which large quantities are taken out for railway sleepers and piling, and sawn timber shows the extent of the local industry.

ANNUAL PRODUCTION OF NATIVE TIMBER IN AUSTRALIA (HEWN AND SAWN), 1903 AND 1913.

State.	1903 Production.	1913 Production.	No. of Mills 1913.
	Feet B.M.	Feet B.M.	
Western Australia	126,730,000	218,908,000	35
New South Wales	100,408,000	165,899,000	477
Queensland	69,509,000	156,634,000	247
Victoria	38,841,000	81,770,000	167
Tasmania	35,197,000	60,780,000	122
South Australia	131,000	101,000	24
	370,815,000	683,092,000	1,072

AREA OF HARDWOODS.

No reliable data exists concerning the amount of hardwood timber available in Australia. The forest area is overestimated in much the same manner as is the case in Canada. It is generally stated at 80,000,000 to 100,000,000 acres. The wooded area reaches this extent, or even more, but the commercial forest area from which the timber could be taken and utilized under even a substantial increase on present prices is extremely limited, probably not over three or four million acres carrying forty billion feet of timber.

A large proportion of this timber is situated at a considerable distance from railroads, much of it in scattered areas which may not justify railroad building for a great many years. The most important areas of this accessible workable timber are in Western Australia, 3,000 miles by water and in addition, on the average, 100 miles by rail from the Australian centres of timber consumption. The next most important areas are in Tasmania, 400 to 600 miles by water from the markets. The water freights on Tasmanian timber are stated in normal times to be $7.20 per thousand feet, almost

as much as from British Columbia. The remaining forest areas of importance in Victoria, New South Wales and Queensland will average over 100 miles by rail from the nearest markets.

POSSIBILITIES OF PRODUCTION.

The best of the remaining Australian forest is now being cut. Excepting in Western Australia, the areas of commercial forest are being seriously overcut. Even if capital, which has not been fortunate in Australian timber, were disposed to engage in increased lumber production, but few areas are available which could be opened up to such an extent as to affect the annual production, unless there was a very substantial increase in present prices.

Increased production is permanently possible in Western Australia. Only one-third, however, of the Western Australia output finds its way to the Eastern Australian market.

The exports from Western Australia in 1914 were:—

Exported to—	Feet B.M.
Eastern Australia	57,000,000
Africa	38,000,000
India and Ceylon	28,000,000
New Zealand	24,000,000
United Kingdom	18,500,000
Belgium	2,500,000
Argentine	1,500,000
Others	2,500,000
Total	172,000,000

West Australian timber is exported chiefly for railroad sleepers, docks, public works and special uses in railroad carriage and ship building. The average f.a.s. value is about $33 per thousand feet. The freight 3,000 miles to the Eastern Australian market is about $12.50 per thousand. For this reason the West Australian forests producing hardwoods only are not likely to seriously compete with imported softwoods in the important Adelaide, Melbourne and Sydney markets of Eastern Australia.

SUMMARY.

Although large quantities of timber exist in Australia, it is not so suited for general building purposes as are the imported softwoods, the cost of placing it on the market is more than equal to the c.i.f. cost of the imported woods and is likely to increase. It is to be expected that while Australian woods will continue to be exported for sleepers and other special uses and will be used to even greater extent for interior finish, flooring, furniture and manufacturing in Australia, softwoods, the chief of which is Douglas fir, will continue to be imported in increasing quantities and proportions for the needs of the population.

CHAPTER II.

The Use of Timber in Australia.

The estimated annual consumption of timber in Australia, excepting for fuel, posts, piles and unmanufactured fencing material is given in the following table:—

Consumption of Lumber and Timber in Australia, 1913.

	Quantity. Feet B.M.	Value.
Domestic Australian production	500,000,000	$16,800,000
Imported lumber	432,000,000	14,318,400
" logs	23,000,000	580,800
Total	955,000,000	$31,699,200

The average annual consumption of manufactured timber per head, 196 feet board measure, is not so great as might be expected in a new country, the populated parts of which are fairly well clothed with trees. The truth is that, although very little of populated Australia is destitute of trees as is the Canadian prairie, and the greater part of the settled country is at least sparsely wooded, it is only in Western Australia and Tasmania, states containing together barely 11 per cent of the population of the Commonwealth, that a large proportion of the buildings are constructed wholly of wood.

The annual per capita consumption of wood in Australia, aside from railway sleepers, is 175 feet; the annual per capita consumption on the treeless Canadian prairie, on the same basis is 800 feet.

There are several well defined reasons for the much smaller consumption of timber in Australia.

Land settlement and development are not proceeding so rapidly in Australia as in Canada, with the result that a much smaller proportion of new buildings, transportation facilities and public works are erected annually.

Almost two-fifths of the population of Australia lives in six cities; 43 per cent of the total population lives in towns containing 3,000 or more persons. This urban population does not require the same proportionate number of separate dwellings and outbuildings as an agricultural population. Substitutes are everywhere used in a greater proportion by an urban than by a rural population.

FEW WOODEN HOUSES.

Over 97 per cent of the population of Australia is of British descent. This European population has transplanted to Australia a European type of house; the workman's cottage of London, Birmingham or Manchester, brick walls, tile or iron roof and plaster finish covers solid square miles in Adelaide, Melbourne and Sydney. No distinctly Australian type of building has been developed as in the case of Canada where two hundred years on this forested continent has evolved the wooden building. When considering the erection of a new building the Canadian thinks in terms of wood and the Australian thinks in terms of brick or stone. The one searches for the wood, the other searches for the substitute.

The small four-square European type of brick or stone dwelling is adapted neither to the hot Australian summer climate nor to the broad Australian spaces. A type of timbered bungalow would be cooler, more livable, better looking and would cost less.

This predisposition to build with a certain material is seen even throughout the country districts, where farm houses are more frequently brick than otherwise, though trees were cleared away to make room for them and the bricks were hauled miles by wagon.

The higher cost of timber in Australia has prevented its greater use for building purposes. The cost to the consumer in normal times for either the native or the imported timber has been $45 to $65 per thousand at coast points and considerably higher to the many builders forced to pay inland freight or haulage. Contrasted with this, bricks, the manufacture of which has been extensively undertaken by state enterprise, may be purchased for less than $10 a thousand. A brick house is usually built at a cost of $500 per room. The cost of building a wooden house of the same type is barely 10 per cent less.

GALVANIZED IRON COVERING.

Galvanized iron is the common material for covering surfaces, whether it be fences, roofing, or siding. Where common lumber would be used in Canada for tight fencing, cottage roofs, roofing or siding warehouses, workshops or other extensive buildings, galvanized iron is used in Australia. The cost of 26-gauge galvanized iron to cover 1,000 square feet was at the outbreak of the war about $50. The cost of rough common lumber, including extra framing necessary, suitable for the same purpose, was slightly less. Australian builders prefer the galvanized iron because it will do with a lighter timber framework, the labour cost of applying it is less and it will make a lighter job than rough common lumber.

The quantity of galvanized iron yearly imported into Australia to be used chiefly as a substitute for common lumber is equal in covering capacity to 345,000,000 feet of lumber.

The population of Australia, because of its concentration in cities, is brought under the influence of restrictive building regulations to a greater extent than is the case in any other new country. As pointed out above, two-fifths of the population is in five metropolitan areas varying in population each from 120,000 to 745,000. Each of these areas consists of a central city a mile square surrounded by several suburban municipalities. The suburban municipalities contain the greater part of the population.

The building laws for the central city in the case of the four most important metropolitan areas, Adelaide, Melbourne, Sydney and Brisbane greatly restrict the use of wood. The suburban building laws permit the erection of detached wooden buildings. These laws while not so severe as the central city appear to be moving naturally in the direction of a lesser use of wood. This is to be expected, however, where the population already thinks in terms of substitutes, where the experience of builders and architects has been almost wholly with substitutes, where the manufacturers of and dealers in substitutes are constantly at work, and where, on the other hand, there are few timber merchants who are not also substitute merchants.

There are no wooden cities and few wooden towns in Australia. The general consumption of wood, outside the few communities actually in or near forest manufacturing centres, is restricted to use in finishing buildings built of other materials. The most important uses are joists, studding, rafters, roof battens, flooring and in a smaller proportion of buildings ceiling, lining and weatherboarding.

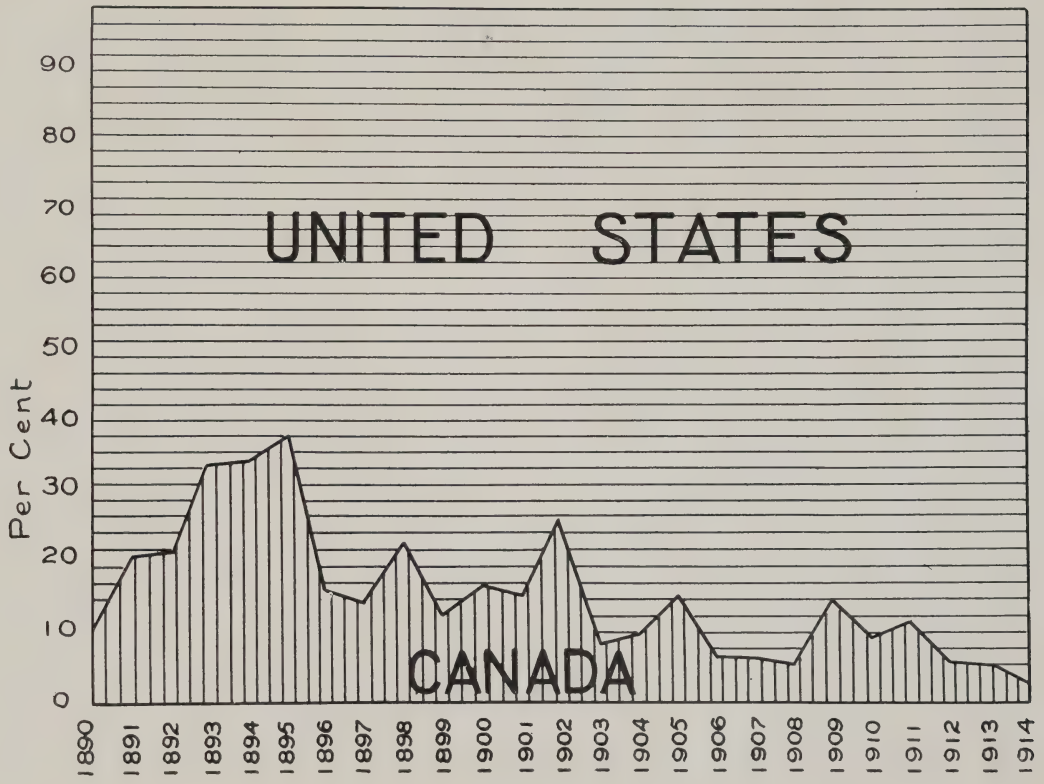
There are as yet developed few manufacturing enterprises in which wood is required as a raw material. The total use of wood in factories (aside from building supplies and including boxes) does not exceed 110,000,000 feet per year, or a per capita use of 22 feet per annum, as compared with 220 feet per capita per annum in Ontario and 116 in British Columbia.

The per capita consumption of wood in Australia is now probably at the minimum. The continued concentration of the population in cities is only possible if manufacturing industries are further developed which in turn will lead to an increased use of timber. On the other hand, a greater distribution of the population through the country in agricultural pursuits will also result in an increased demand for timber.

It may fairly be expected therefore that more intensive development of the country will lead to an increased per capita use of timber. Another influence for the increasing of the use of lumber in Australia, which lies largely in the hands of lumber producers and exporters of the Pacific Coast, is the development in Australia of the timbered and half-timbered type of construction so adapted to Australian climatic conditions.

The production of native woods is so near the peak that any increased use of timber must be met by an extension of imports.

Comparison of Canadian and United States Lumber Exports to Australia 1890–1914



CHAPTER III.

Timber Imports of Australia.

The imports of timber into Australia now constitute about fifty per cent of the total consumption for all purposes.

The imports for the year 1913 were:—

AUSTRALIAN TIMBER IMPORTS, 1913, BY CLASS.

(Australian Official Figures.)

Class.		Quantity.	Value.
			$
Rough lumber	M ft. b.m.	340,987	9,384,000
Dressed lumber	" "	82,471	2,942,400
Logs	" "	23,438	580,800
Door stock	" "	5,027	216,000
Shooks	Number	4,874	194,880
Veneers	M sq. ft.	1,959	265,920
Laths	Pieces	46,337,000	192,000
Picture and room mouldings			142,500
Staves		3,640,000	109,440
Pickets		2,302,000	40,800
Hickory	M ft. b.m.	168	25,440
Shingles	Pieces	1,527,000	10,560
Bent wood			9,600
Doors	Pieces	1,400	2,112
Architraves and mouldings	Lin. ft.	80,000	1,200
			14,117,712

The countries from which the import timber trade of Australia is drawn are shown below:—

IMPORTS OF TIMBER INTO AUSTRALIA BY COUNTRIES IN 1913.

(Australian Official Figures.)

Country of Origin.	Quantity in Feet B. M.	Per cent of total.	Value.	Average Value per M ft. B. M.
		%	$	$
United States	258,222,000	57	6,874,560	26 62
New Zealand	64,487,000	14	2,078,880	32 33
Norway	62,431,000	13	2,120,640	33 96
Sweden	29,475,000	6	1,116,000	37 85
Japan	15,848,000	4	339,840	21 44
Canada	13,274,000	3	526,080	39 61
Russia	11,138,000	2	334,560	30 00
India	649,000		85,440	131 65
Straits Settlements	266,000		6,864	25 80
Germany	184,000		10,560	57 40
Netherlands	38,000		7,056	185 68
United Kingdom	15,000		2,352	156 80
Total	456,027,000		13,502,832	—

An increasing dependence upon outside sources of timber supplies is shown by the growth of importation in the past decade. Foreign timber constituted only 32 per cent of Australia's consumption in 1903; by 1913 it filled 48 per cent of the total timber uses.

GROWTH OF TIMBER IMPORTS INTO AUSTRALIA FROM 1903 TO 1913.

Class.	1903.		1913.		Increase per cent.
	Quantity.	Value.	Quantity.	Value.	1913 over 1903.
	Ft. B.M.	$	Ft. B.M.	$	%
Lumber and logs	176,850,844	4,345,737	447,065,048	12,945,052	198
Manufactured goods	.....	206,923	.....	1,097,279	432

The overwhelming lead of the United States in this trade is due to the control possessed by that country of Douglas fir exports. Over 92 per cent of the lumber exports from the United States to Australia are Douglas fir. The United States monopoly of redwood, a softwood of growing importance on the Australian market, is a factor in improving the country's export position.

New Zealand exports to Australia softwoods, white and kauri pine, used extensively in box manufacture, shelving, lining, furniture factories and industries. The import of these woods into Australia has fallen off by over 35 per cent in the five years 1908 to 1913, a consideration of influence in increasing the importation of Pacific Coast woods. The hardwoods of New Zealand, chief of which is rimu, are, however, being exploited and exported to Australia in increasing quantities as the softwood forests are depleted. The hardwoods are used almost wholly for flooring and lining.

The rapid cutting of New Zealand forests, which are only estimated to contain thirty years' supply at present rate of use, will prevent a great increase of exports to Australia unless prices are substantially increased.

A great factor in New Zealand's trade with Australia is the Australian tariff preference applying to timber, extended to the sister Dominion. This tariff gives New Zealand an advantage over Canada which is indicated in the following tabular statement:—

Australian tariff on rough Boards.

Species and Country of Origin.	Tariff per M. Ft. B.M.
New Zealand white pine and rimu	$2 40
Canadian Douglas fir and spruce	8 40

The extension of this tariff preference to include other Dominions would be a factor of the greatest importance to the Canadian trade.

SCANDINAVIAN TIMBER.

Norway and Sweden together still supply to Australia nine times as much timber yearly as does Canada. This holds true in spite of the fact that Scandinavian standing timber is more valuable than Canadian and the freight distances are greater. The distance from Baltic ports to Australia is 13,000 miles and the distance from Western Canadian ports is 7,000 miles.

The Europeans who first developed Australia imported their necessary softwoods from the only source with which they had connections, the Baltic and the Scandinavian Peninsula. This timber became the standard softwood of Australia and even yet it is the standard of quality for common joinery. The standard of dimension introduced by the 3-inch by 9-inch Baltic deal still lingers to a certain extent.

Douglas fir, however, because of its cheapness and greater latitude of sizes, together with the assistance given by a tariff penalizing all sizes below 6 inches by 12 inches, sizes which include the whole of the Scandinavian output, has almost driven out the Scandinavian rough deal. It is in dressed lumber that Scandinavian countries are still pre-eminent in the Australian market. The standard of quality and size for flooring, lining and weatherboards set in Australia two generations ago by the mills of Norway and Sweden still holds absolutely good. The large trade with Norway as compared with Sweden, although Sweden is the more important timber producing country, is due to the fact that Norway specializes in dressed lumber, Australia's chief imports from the Baltic.

JAPANESE COMPETITION.

Japan, ten years ago unknown in the Australian timber trade, has passed Canada. The imports from Japan are a soft, weak, knotty white pine for boxes (known as Pacific pine), oak and ash for industrial purposes.

Several unlikely countries, Norway, Sweden and Japan, exceed Canada in the exports of timber to Australia. At the beginning of this century Canada was exceeded only by Norway and the United States. The present exports from Canada are eighty per cent Douglas fir and twenty per cent spruce deals from the Maritime Provinces. The trade in the latter has been seriously reduced by the introduction to the Australian market of Japanese pine and Pacific Coast hemlock and spruce.

Russia's exports of spruce and pine deals, from the White Sea and Pacific ports, are growing and if no change is made bid fair soon to exceed Canada's trade.

The timbers imported from India and the Straits Settlements are teak and other hardwoods which will not be a factor in the trade.

During the past decade important readjustments have taken place amongst the countries supplying Australia with timber and in these readjustments Canada's share of the trade has decreased both in proportion and total.

LUMBER IMPORTS INTO AUSTRALIA BY COUNTRIES IN 1903.

Country of Origin.	Quantity in Feet B.M.	Per Cent of Total.	Value.	Average Value per M ft. B.M.
		%	$ cts.	$ cts.
United States	88,759,999	50	2,040.278	22 98
New Zealand	51,325,008	29	1,157,054	22 54
Norway	21,810,058	12	745,324	34 17
Canada	7,870,875	4	175,905	22 35
Sweden	5,593,696	3	172,459	30 83
Russia	810,400	.....	26,827	33 12
Straits Settlements	261,779	.....	5,779	22 14
United Kingdom	179,977	.....	9,427	52 37
Total	176,611,792	.....	4,333,053	—

The most striking feature of the shifting of the trade amongst the various countries is the big gain made by all the leading countries competing, except New Zealand and Canada, which lost heavily, New Zealand because of exhaustion of supply and Canada for other reasons which will be discussed later. Sweden has largely increased her share of the trade by specializing to a greater extent on the export of dressed spruce and pine. Two practically new sources of supply have been opened up in the ten years, one of which, Japan, has already exceeded Canada in her exports to Australia, and the other of which, Russia, in less than ten years of trade development, has reached Canada and possesses embarrassing possibilities for the future.

The growth of the timber importations of Australia during the decade 1903 to 1913, as shown in the following table, is an encouraging indication of what may be expected from the trade in the future:—

A Comparative Statement of the Timber Imports of Australia 1903 and 1913.

Class of Timber.	1903.		1913.		Percentage of quantity.
	Quantity.	Value.	Quantity.	Value.	Increase or decrease.
		$		$	
Rough lumber ..... ft. B.M.	106,725,965	2,357,678	208,373,309	5,197,852	plus 107%
New Zealand pine..... ft. B.M.	51,088,378	1,149,388	50,017,057	1,467,460	minus 3%
Dressed lumber..... ft. B.M.	24,763,771	829,632	82,471,445	2,944,128	plus 233%
Lath ..... (pieces)	18,524,843	80,164	46,337,501	192,628	plus 150%
Doors ..... (number)	31,341	66,777	1,410	2,136	minus 96%
Staves, rough ..... (pieces)	314,358	32,035	3,639,969	109,776	plus 1,058%
Pickets ..... (pieces)	760,375	16,761	2,302,748	40,785	plus 203%
Shingles ..... (number)	2,785,554	9,648	1,526,994	10,598	minus 45%
Hickory (undressed)..... ft. B.M.	59,602	4,574	168,088	25,440	plus 182%
Logs, feet..... B.M.	213,128	4,464	23,437,906	582,052	plus 1,089%
Architraves, mouldings, etc. .... lin. ft.	46,257	1,636	80,378	1,200	plus 74%

Australia is a distributing point from which the Pacific Islands are supplied with timber. The re-exports of imported timber amounted to only 2,000,000 feet in 1913, a normal year. This trade is not likely to assume important proportions.

The purchase of such manufactured material as lath, mouldings, three-ply veneer, box shooks, staves and pickets have become very important. The following table shows the volume in 1913 by countries of origin.

Imports of certain Manufactured Timber into Australia, 1913, According to Country of Origin.

(Australian Official Figures.)

Country of Origin.	Value.	Per cent of total.
	$	%
United States	568,464	50
Russia.....	192,288	17
Germany.....	120,480	10
Straits Settlements	90,384	8
Canada	56,640	5
Norway.....	43,344	4
United Kingdom.....	32,640	3
New Zealand.....	12,480	1
Sweden.....	10,752	1
Netherlands.....	9,744	1
France.....	1,152	
Total	1,138,368	.....

The leading place held by the United States in this field of trade also is due to the almost exclusive control now possessed by that country of Australia's importations of lath, pickets and shingles and to the important influence exercised on the supplies of staves and mouldings.

Russia's exports of manufactured wooden goods to Australia consists only of three-ply alder, birch and cottonwood veneer, principally alder.

Germany's trade was two-thirds in picture and room mouldings, in which she held a commanding position in the Australian market, and one-third in three-ply alder veneer.

Canada, while standing better proportionately in manufactured goods than in lumber, is nevertheless a poor fourth and were it not for box shooks would be still lower on the list. The most important items from Canada in this class of exports, are in the order of their importance box shooks, staves and lath.

The United Kingdom supplies chiefly three-ply veneer, and Japan, a newcomer in this trade, furnishes staves and laths.

A comparison of the above table with that following this paragraph shows that here as with lumber the source of supply are constantly shifting, as new aggressive competitors enter the field with important forest areas at their command. Any country possessing a share of the trade can only hope to retain it by keeping in constant contact with the purchaser and meeting all competitors in manufacturing and selling and in shipping costs and methods.

IMPORTS INTO AUSTRALIA, 1903, BY COUNTRIES.

(Manufactures of Lumber.)

Country.	Value.	Class of Goods.	Quantity.
	$		$
United States	180,916	Laths (pieces)	15,896,483
		Doors (number)	28,326
		Staves (pieces)	295,482
		Pickets "	629,033
		Shingles "	2,784,354
		Architraves (lin. ft.)	46,057
Canada	17,083	Laths (pieces)	2,628,360
		Pickets "	131,342
		Shingles "	1,200
Sweden	4,757	Doors	3,000
United Kingdom	2,894	Staves (pieces)	13,225
		Doors	15
Germany	1,162	Staves (pieces)	2,421
		Architraves (lin. ft.)	200
New Zealand	101	Staves (pieces)	3,180
Netherlands	10	" "	50
Total	206,923		

This table shows that Canada has not shared to any extent in the immense growth of Australia's imports of manufactured wood goods. Canada's second ten years ago has now dropped to an uncertain fourth place and has been passed by Russia and Germany and almost equalled by the United Kingdom and Japan. Japan at her present rate of progress with the forests of Northern Japan and Manchuria at her back and new modern machinery recently installed is likely to play an important part in this trade.

CHAPTER IV.

Manner in which Importation of Timber is Handled.

The manner in which timber is imported, sold and distributed in Australia must be thoroughly understood by any one desiring to enter and extend the Canadian lumber export trade.

DISTRIBUTION OF IMPORTS BY PORTS.

Each state draws the greater part of its supplies from abroad through one port, as is indicated in the following table:—

DISTRIBUTION OF ALL AUSTRALIA'S IMPORTS BY IMPORTING STATES, 1913.

States Importing.	Chief Lumber Importing Ports.	Quantity, Feet B.M.	Per cent of Total.
New South Wales	Sydney, Newcastle.	180,798,000	43
Victoria	Melbourne	133,051,000	31
South Australia	Adelaide, Pt. Pirie.	88,833,000	21
West Australia	Fremantle, Geraldton.	14,704,000	4
Tasmania	Hobart, Launceston.	4,039,000	1
Queensland	Brisbane	2,025,700	—
Total		423,450,700	

The order of the states as they stand at present according to quantity of importations for each is likely to remain unchanged. Each state has great undeveloped potentialities, and needs only the influx of capital and population to greatly increase its lumber importations. The yearly importations of Queensland, which are now unimportant, are likely to show the greatest proportionate growth. The development of new areas and the rapid running up of timber importations in Australia in the past have been more often consequent upon mining discoveries than on any other cause. Great possibilities in this direction are known to exist, and may at any time lead to a strengthening of the timber demand and the diversion of new trade to a new port. This is particularly true of the northern section of the continental coast, six thousand miles in length, which now from Brisbane to Geraldton receives no timber importations. Should no great mining boom build up a great timber demand here, the slower growth of pastoral, semi-tropical and tropical agriculture and allied industries in time will certainly provide a market. This great region, equal in area to the whole of populated Canada, believed to be equal in resources to the land tributary to the gulf of Mexico, at present uses no timber, solely because of lack of population, a lack which must eventually be overcome.

All these ports named in the above table, excepting Geraldton, Hobart and Launceston, which rarely take lumber in steamer cargo lots, are in normal times supplied almost wholly by steamer shipments. The three ports named as exceptions, because of their limited demand, are usually supplied by sailing vessels and to a limited extent by transhipment. There is a strong possibility, however, that as demands

increase in Australia, new areas open up, and nearby native forests are cleared away, that many coastwise ports will provide a market for small lots of timber, such as can only be economically supplied by sailing vessels carrying cargoes of three-quarters to one and a half million. This has been the case in New Zealand, which in proportion to area is more intensely developed than Australia, and is likely to be the case in Australia. Should this development occur the trade will provide a wider market of employment for the motor sail vessels now building.

BUYING METHODS.

The merchants who are the actual importers and carry in stock the rough and dressed lumber, lath, shingles, staves, pickets and other commodities, are kept in touch with the foreign producer, whether European, Russian, Japanese or North American, by resident agents or brokers in Australia. The terms on which the latter do business are varied, and in the case of North American timber goods especially, are changing. Usually the resident commission house or man in Australia, when dealing with timber other than North American, that is, timber from countries where the production is not greater than the demand, is agent for certain producers, sells the product of no other competitive mills, and has the sole selling right for the mills he represents. In this case the mill in Sweden does its own exporting, makes its own freight arrangements, and quotes c.i.f. through its agent. This was once true also of the Australian imports from the North Pacific coast. At a time when over-production was not so great, the lumber was all carried in sailing vessels, and mills did their own chartering. At that time the importing in Australia was in the hands of a few merchants who were in direct communication with mills and purchased in cargo lots.

The great increase in the number of mills cutting for the export trade, the passing of cross Pacific lumber transportation from the small schooner carrying four hundred thousand to fifteen hundred thousand feet which was not too great a financial risk for a mill to charter and did not load faster than a mill could cut, to the steamer carrying two to four million feet which no single mill could handle financially or physically, created a condition radically altering export methods on this side of the Pacific.

At the same time the inability of even the largest yards in Australia to accept large steamer loads of timber, and the growing up of a larger number of smaller merchants, three in Perth and Freemantle, six in Adelaide, thirty-six in Melbourne, forty to fifty in Sydney, twelve in Newcastle and two to three in Brisbane, rendered necessary some middleman at the other or Australian end.

The result on this side has been that the direct connections with the Australian buyer at one time possessed by the mills has, except in the case of one or two mills, passed away. It would be difficult to build up anew such connections. The export of lumber has been divorced from manufacturing and so far as the Australian market for North Pacific lumber is concerned is now in the hands of about ten United States shipping companies. These companies perform three functions. They buy the lumber from the producer, and by the methods of their buying create a state of archaic cut-throat competition unknown now in any other manufacturing industry of like importance, they charter the ships and sell c.i.f. or c.i.f. and e. Australian port, usually financing a portion of the transaction until the cargo is accepted by the purchaser. Only one or two Australian importers make their own freight arrangements.

These exporting companies, wholly of the United States, are the only connection between the manufacturer and the importer. They were at one time in direct communication with the merchant in Australia, without the services of a middleman, received, by cable the inquiries and specifications and quoted direct. In a few instances with the larger and older merchants in Australia this custom yet survives.

The common practice now is either that the exporter sells in Australia through a representative or agent who works on a commission or fixed payment per thousand

feet (amounting to about 25 to 50 cents) or through an established mercantile house which probably handles many other commodities in addition to lumber. In the first case it has been unusual for the representative in Australia to speculate in shipments coming forward. In the latter case the representative being stronger frequently speculated, either purchasing complete cargoes, hoping to sell them before arrival, or in cases where only a portion of the cargo was sold, brought the rest forward for later sale.

The tendency is now for exporters to deal in Australia through representatives financially strong enough to do a little purchasing speculatively on their own account. These representatives usually handle other building materials in addition to lumber, have branch offices in each important Australian port, and have small piling space in each Australian port. Orders may be solicited from merchants, large and small, in each port, the smallest may buy at as favourable terms as the largest. If the whole cargo cannot be placed before being contracted for, or if conditions are tempting for speculation, the representative will bring a part cargo or whole cargo forward and store it if not sold before discharging. As a rule very little is stored.

Occasionally where a rising charter market is indicated the Australian representative brings a cargo forward speculatively, with the option of two or three parts, utilizing his branch office organization to divert the vessel to the port in which the most favourable sale can be made.

Distributing cargoes amongst merchants, large and small, has made it possible for small yard owners, if they are in a position to pay for a small shipment, to secure it on as favourable terms as a large buyer. This encourages the importation by small yard men of Pacific Coast woods which otherwise would only be available to purchasers able to buy in cargo lots, whereas competitive rough lumber from Scandinavian ports may be brought out regularly in parcel shipments on the frequent mail and freight lines.

Buying of Pacific Coast timber is speculative. The merchant issues his inquiry and buys usually six to twelve months before loading and sometimes two years before delivery.

The fluctuations within a few months in normal times have ranged from 17.50 c.i.f. to 29.50 c.i.f. base for Douglas fir. A merchant buying for delivery six to twelve months ahead, as is the custom, is taking a grave risk of paying much more than his competitor, who may catch the market at a more advantageous point. Australian merchants would welcome a fixed export price for Douglas fir, as a relief from one fluctuating market influence, and accustomed to variations of $5 to $10 in the level of c.i.f. lumber prices, they would not be affected by an increase of $3 or $4 in the export base price.

The fluctuation of f.a.s. lumber prices and the much greater fluctuation of freight rates encourages speculation on the part of the exporter also, who may and frequently does sell c.i.f. before he has acquired either lumber or ship, or who may acquire either lumber or ship, or both, for loading in the distant future, and hold for months without selling.

PURCHASES NOT AFFECTED BY HIGH FREIGHTS.

It is a remarkable fact that though the lumber freights from the North Pacific to Australia may vary in peace times from 28 shillings to 70 shillings or more the purchase and use of North Pacific woods on the Australian market is in no way diminished by high freights. Even in war times, with freight rates over 110 shillings, the use of Douglas fir seems almost as great in proportion to the amount of building going on as in normal times.

The Australian merchant is not particular as to any slight variation in the c.i.f. price of Douglas fir, such as 12 or 16 shillings per thousand, so long as he feels sure that his competitor is buying no cheaper than he, and that the price will not fall appreciably after he has stocked up. He always buys more readily on a rising than on a falling market.

There is a moral in this for the producer of Douglas fir and other woods of the Pacific Coast region. The increases of 10, 20 and more shillings per thousand feet which the Australian merchant pays in times of rising freight without diminishing his buying enthusiasm, would be as readily paid if they were increases in f.a.s. prices. It would only be necessary to assure him that the increases would be permanent or fixed for a definite period and not temporary or subject to rapid fluctuation. The Australian buyer cannot credit the frame of mind in which the Pacific Coast manufacturer sells.

Australian Coast town merchants, through whose hands all timber imports passes, are strongly banded together in city associations for trade furtherance and protective purposes. Price lists have been uniform amongst all association merchants in each town month by month for some years past. There are few merchants who do not belong to these associations and few instances where association prices are not maintained.

Increased purchasing cost is passed directly to the consumer. Douglas fir retails from $40 per thousand feet in normal times to $60 per thousand feet in war times. The use of substitutes, brick, stone, cement, tiles, slate and iron have reached their maximum. Douglas fir is only used where it is needed and has no really close competition. An increase of $4 per thousand feet to the f.a.s. price would not affect its use.

The present system of exporting is conducted at the expense of the mill owners for the benefit of the vessel owners and Australian merchants. The producers of lumber, by far the most important group, in members and financially, compete against one another to fill the orders and keep the prices down. The exporters, fewer in number and with comparatively less resources compete against one another for transportation and put the freight up. A proper combination of the lumber producers who control the only suitable timber commodity available to Australia, likewise the only timber commodity which gives lumber freights from North America to Australia their value, with the exporters who possess the export shipping knowledge should be able to keep export lumber prices up to a fair and reasonable level and lumber freights also at a non-speculative and reasonable figure. The eliminating of the present great element of speculation from trans-Pacific lumber freights would encourage steadier buying, in itself a more favourable condition for the producers.

The representatives quoting to merchants on Douglas fir usually are agents for Scandinavian timber, and in certain cases Japanese and Russian also. The species of timber sold is immaterial to the agent.

NOT PUSHING DOUGLAS FIR.

There are very few amongst the agents or selling representatives soliciting orders from Australian timber merchants who push Douglas fir only. Nearly all are quite as keen to sell redwood or Swedish timbers.

Few people selling Douglas fir or other Pacific Coast woods to merchants have more than a casual knowledge of their qualities or possibilities for more than rough construction purposes. Few have visited the region in which it is produced, have seen the manufacture of the woods, or are acquainted with recent developments in the use of woods for various industrial purposes or for more valuable and decorative uses in interior finish. Pacific Coast timbers are sold not as a special product with certain definite qualities and values, but as wood, common wood. The sizes of Douglas fir from six feet by six feet are known as "junk." As a result of the merchant's lack of special knowledge concerning, and special interest in Douglas fir the quantity sold is not as great as it might be, as will be pointed out in this report.

The representatives in Australia selling imported timber quote on inquiries sent out by merchants. They rarely go further and endeavour to initiate a demand by showing engineers, architects or important builders that any particular wood has special qualities which fit it for use in fields which it has not yet entered, such as Douglas fir for panel doors, or spruce and hemlock for boxes and shelving. There is a great field for this class of work.

CREATING A DEMAND FOR REDWOOD.

The redwood exporters of California have wisely sent an expert representative to Australia, whose sole duty it will be to study possible extension of the use of redwood and create a demand which will later on be reflected in greater orders for redwood from Australian merchants.

This representative is learning the influences which have limited the use of redwood for interior finish and striving to overcome them. For instance the finish given to redwood in Australia has not made it as attractive a wood for interior work as it has been considered in California. Australian architects are now being shown by the redwood man varied and more pleasing methods of applying finishes to the wood. The result will be greater orders for redwood and consequenty smaller orders for clear Douglas fir, one of its competitors.

Another duty of this representative is to study the uses of the wood in the Australian market and learn if a specification may be worked out which will permit a more complete utilization of the mill run lumber, particularly if a market may not be built up for short clears.

A redwood bungalow has been constructed in an attractive suburb of Sydney to demonstrate the beauties and economy of building in redwood.

A campaign so carried on is certain to influence the use of any wood possessing definite characteristics and merits. The three classes of persons who are the actual arbiters of a wood's success or failure in any market, the home builder, the architect and the engineer are given a convincing, lasting and ocular demonstration of what may be accomplished at a definite cost. The result, wherever the wood can stand on its merit is an increase of business.

Redwood exporters, doing a business of about 20,000,000 feet annually have initiated this campaign to increase the sale of their product in competition with Douglas fir. Douglas fir, spruce and hemlock producers, with a business annually twelve times as great, can well afford to protect their interests. The importance of this work should not be underestimated. Wood is only one of the materials available to the Australian architect. He is daily bombarded by literature, samples and visitors impressing upon him the advisability of, ease of, and dependable results from, using some substitute for wood in finishing buildings. As a human being he must respond to the environment of substitutes in which he passes his time. Douglas fir producers have an opportunity of bringing Australian architects to specify Douglas fir interior trim. This possibility will never become a reality if the producer leaves the development of new markets for his best material in the hands of Australian merchants, many of whom are busily engaged in pushing sale agencies for substitutes.

Timber merchants are also substitute merchants. All handle galvanized iron, tar, wool and paper roofing; many stock also bricks, cement, plaster, ironmongery, wall boards and metal ceilings.

LUMBER DISTRIBUTION IN AUSTRALIA.

All lumber and timber imported into Australia is received and distributed by a comparatively small number of timber merchants. As has been stated, these merchants in each city work closely together in a strong association with well defined trade regulations, the chief of which, as far as Pacific trade is concerned, apply to the regular maintenance of association established prices.

This is accomplished by allocating to each member of the association a definite proportion of the total business handled by the members. The association may also bar from the market any exporter who is not considered to have met association requirements in standards of business.

Although association members are not allowed to enter into price competition within a defined territory, which usually includes the city and suburbs, they may compete unrestrainedly in outside territory.

The state of New South Wales has opened up a timber yard in Sydney as a state enterprise. This yard imports direct, buying through the state representative in San Francisco, and in addition to supplying the important state requirements, enters the open selling market in competition with the timber merchants. The state yard appears to maintain association prices. This state yard handles about 1,000,000 feet monthly of Douglas fir.

HOW TIMBER IS HANDLED BY MERCHANTS.

A great variety of business is handled by the timber merchants in the ports through which Australian imports are handled. Few of them, and these only in Perth, Hobart, Launceston, Brisbane and to a less proportionate extent Sydney, are actually engaged in the production and manufacture of Australian lumber. Almost all merchants carry Australian woods in stock however, buying them as they do imported woods in competition on the open market. The native woods used in the coast cities (which constitute by far the greatest lumber consuming areas in Australia) are nearly all brought to the merchants, yards long distances by rail or boat. The greater part of the native timber comes to the merchant rough from the mill. A few of these city merchants bring native timber to their yards in logs and resaw to order.

The larger lumber distributors, some of whom occasionally carry over $1,250,000 worth of lumber in stock at one time, have extensive remanufacturing facilities, including modern equipped saw-mills, box factories, planing-mills and woodworking shops.

The rough cargoes brought in are put into stock, the higher grades well stacked under shelter. Material is drawn from stock and resawn, remanufactured or machined to the customer's order.

The growth of the large cities away from the central locations of the older established merchants, together with the facilities now possessed by the new smaller dealers for buying smaller cargoes, has resulted in the development of many smaller concerns. The merchants possessing large saw-mill plants in addition to running their own retail trade, sell wholesale to the smaller dealers and to contractors for whom they do the manufacturing.

The merchants in the chief ports also do a large amount of resawing and manufacturing for the interior towns and villages.

Certain important merchants of Melbourne and Sydney depend upon the country for one-half their sales of imported lumber. The quantity of Pacific Coast lumber, chiefly Douglas fir, shipped to the interior is steadily increasing. The proportion of this wood now used in building operations inland in Australia has increased greatly in the past few years. It is estimated that almost one-third of the Douglas fir now imported into Sydney is shipped to the interior.

GRADING.

The Australian timber merchant in drawing up specifications and buying Douglas fir devotes a great deal of ingenuity to working out means of securing a higher grade of lumber without paying for it. Specifications are so planned that the merchantable when resawn will produce the maximum possible proportion of select or better. For this reason some importers take 4-inch by 18-inch, instead of 6-inch by 12-inch. Others specify that their orders must if possible be purchased from some mill having no railroad connections, believing that from such mill they will get all the uppers which other mills are supposed to put into flooring and other clear stock for domestic market. Another plan is for the Australian buyer, when buying a specification containing both clear or select and merchantable, to specify that the merchantable is to be purchased from one mill and the selects or clears from another in the hope that the first mill in cutting the merchantable will let selects and clears go into the cargo; the buyer thus hopes to get a double proportion of these desirable grades.

These buying methods are due to the competition prevailing amongst Pacific coast manufacturers, a competition which leads them, after reducing the price to the lowest possible level, to further depreciate their assets and rob their stumpage by putting clears or selects into a cargo which calls for merchantable only. This is done occasionally through necessity in order to escape demurrage, but more often through carelessness, or as the only means of securing the business from the exporter sending out the inquiry. The exporter himself, profiting only on the turnover and caring nothing in many cases for the prosperity of the lumber industry, endeavours to force the mills from which he purchases to engage in this quality competition in order that he may buid up a reputation with the Australian buyers for shipping above-grade-cargoes.

Unfortunately when the lumber shipped is superior in quality to the grade called for, the inspection certificate does not show this to be the case. Where merchantable is called for, the inspection certificate forwarded states the cargo to be merchantable, even though the grade actually shipped may have been all select or clear.

This practice leads to two unfortunate results:—

(*a*) The Australian buyer receiving a high-grade cargo, and seeing it described as merchantable in an inspection certificate originating in the same port as the cargo, has his taste spoiled. Year by year he becomes unwilling to take in anything but the best, whatever be the purpose for which the lumber is intended. He becomes convinced that Douglas fir and other trees on the Pacific coast grow square and grade solid clears to the centre. When a real merchantable cargo arrives, the buyer does not read the grading rules to see if it is up to grade, he draws on his memory of previous high-grade cargoes, and puts in a claim if the latest arrival is not well up to his idea of the average of former purchases, regardless of the certificate upon which it was sold.

The fact that a cargo was sold on a definite grade and is equal to that grade is the least of the arguments in the case. An instance may be quoted where a claim was made on a Canadian cargo sold as merchantable, which was equal to merchantable, was passed as merchantable by an inspector, but was not equal to the merchantable being shipped by other mills at the time. A claim was made and refused by the shipper. The buyer of the cargo kept a section of one stick of the cargo, one foot in length, in his office for a long period, and told all buyers that this was what they received if they purchased Canadian timber.

(*b*) Another bad result of the present system of marking inspection certificates is that when a buyer is in the market he frequently specifies a merchantable equal to what he received in the *Mary Ann* or some other vessel months and years before. Probably the cargo of the *Mary Ann* was fifty per cent above merchantable, yet neither the mill nor the buyer has any definite record of this fact. The order is filled, the cargo is graded merchantable, and goes forth. It is not considered equal to the memory of the *Mary Ann,* and a claim results.

There is this to be said for the Australian buyer. The present system of grading gives him very little information, it merely places the cargo above a certain grade line, above which very wide variations are possible. Where two merchants in one town are in competition and each buys a cargo sufficient to last him several months, the one who receives the poorer cargo is in a serious position. No matter how good a merchantable it may be, the poorer cargo is to all intents and purposes inferior lumber so long as the good cargo is in the market.

Buyers in Australia do not now place serious dependence on the inspection certificate except as a means of warding off common lumber and as a means of tallying the amount in the ship. As it has worked out in practice, since over-production has become so serious in the Douglas fir region, the present system of grading has resulted in preventing a fair proportion of strictly merchantable lumber from entering the Australian market. Competition amongst exporters has resulted in orders flowing chiefly to those mills who were known to be shipping as merchantable a grade containing a high proportion of select and clear.

QUALITY TOO HIGH.

This is contrary to the best interests of the country. As large a portion of commons should be used for studding, joists, rafters and rough lumber in building a city in New South Wales as in building a similar city in British Columbia. Such is not the case, however. One rough, temporary fence in Sydney contained out of 122 consecutive boards 1 inch by 6 inches by 6 feet, 66 edge grain clears, every one a flooring board. A pile of roof battens in a Sydney yard 1 inch by 3 inches by 12 feet and up were in reality a pile of edge grain flooring strips. A wood-working shop in Adelaide was building railway cars and for sills about 8 inches by 20 inches by 60 feet was using close-grained sticks, flooring quality, picked out from a merchantable cargo.

Because of the loose grading system prevailing on the Pacific coast, the standard of lumber used is higher in Australia than in the Canadian and United States Coast cities where the lumber is produced.

The quality demanded by the user in Australia is very frequently too high. High grades are used where common only are needed. Even at that there may be found in nearly every lumber importer's yard a pile of selects that has been picked out from merchantable and is being held for remanufacture into doors or joinery of some kind.

The exporter is selling large timbers, long timbers, selects and clears to the importer for the price of common lumber. Naturally so long as this is the case the importer will need no common lumber. He is now getting something he needs, which he can get nowhere else, from the shippers of the Pacific coast for less than the cost of production, chiefly because grading is neglected and producers compete senselessly.

The chief difficulty with the foreign market has always been that it took too little of the log. The present system of grading is decreasing the proportion of mill run that is acceptable to the Austlalian buyer. It is bad for forest conservation and it is bad for business.

The inspection certificate should show clearly the quantity of each grade that has gone into a ship. If merchantable has been called for and selects or clears are shipped the inspection certificate should state the number of pieces, dimension and quantity shipped of each of the grades. The buyer would then know in each case that the shipper for some reason had made him a present; and so would the shipper. The buyer could not call for a similar cargo again without committing himself to paying for it. If all the uppers sent into Australia were paid for, they would not be scattered about so promiscuously in rafters, studding and rough-board fences.

There is room for argument as to the advisability of creating new grades for the Australian market with the object both of encouraging the buying of a larger proportion of lower grades and the securing of adequate payment for the uppers now imported as merchantable.

Should, as is expected, the Australian tariff result in a continued and increasing importation of 6-inch by 12-inch sizes, the same result might be secured by increasing the differential in the list for this timber.

Such steps can only be sucessful if adopted by mills operating in greater cooperation than heretofore.

The basis for all consideration of this important feature of the export trade should be that, so far as we know at present, Australia must have Pacific Coast timber, that just as common is used in Canada so can it be used in Australia, and that should the mills co-operate to force the acceptance of 75 per cent of the log run in all cargoes at an average price $4 greater than the past five years' average, there would be neither objections from Australia nor diminution of orders. It is only necessary that the mills act together to the end that all exports receive equal treatment as to grade and price.

CHAPTER V.

Discussion of Australian Imports by Classes.

ROUGH LUMBER.

The necessity of importing a large proportion of Australia's lumber requirements is generally admitted. In the face of evidence to the effect that while local production increased from 1903 to 1913 from 371 to 683 million, imports increased in the same time from 178 to 432 million and exports remained almost constant at 114 million in 1903 and 135 million in 1913; even the timber owners and saw-mill proprietors recognize the dependence of the country on imported timber. The feeling of the country is, however, that the timber should be imported in rough form and in as large sizes as possible in order that the work of manufacturing to fit the final use may be performed in Australia. To accomplish this end the customs duties, which already encouraged the importation of larger sizes, were proportionately further increased on the smaller dimensions in 1908 and again in 1914.

THE CHANGES IN TARIFF.

This customs tariff against the three chief sources of rough lumber, United States, Japan and Canada now stands as follows:—

Dressed lumber	$9 60	per thousand.
Rough lumber less than 2½″ x 7½″	8 40	"
" 2½″ x 7½″ to 6″ x 12″	7 20	"
" 6″ x 12″ and over	2 40	"

New Zealand enjoys a tariff preference over Canada amounting to $6 per thousand on rough boards, or about 60 per cent of the Canadian f.a.s. value.

A tariff of this nature is the development of the past decade in Australia. During this time the amount of duty on dressed as compared with rough timber has been constantly increased, yet the proportion of rough lumber imported declined from 86 per cent in 1903 to 81·9 per cent in 1913.

The provision in the tariff for the increasing of the proportion of timber imported in large sizes has been more successful. In 1903 only 33·8 per cent of the rough lumber entering Australia was cut in dimensions 6 inches by 12 inches and greater. The proportion of this class of timber had risen by 1913 to 44·9 per cent. Since 1913, the latest normal year of trade, the duty on the smaller dimensions has been still further proportionately increased with the result that a still greater importation may hereafter be expected of 6 inch by 12 inch and up.

To these changes in tariff are due the gradual drift of American cargo specifications away from that of ten years ago in which small sizes predominated to that of the present which contain a larger proportion of larger sizes. Melbourne cargoes have always contained more timbers and larger sizes than Sydney cargoes, because before the union of the states Melbourne served a tariff protected territory in which an effort was being made, by use of customs duties, to build up a local resawing industry and Sydney served a free trade territory. The same tariff now applies of course to both ports, but the influence of the old trade customs persists and while the difference between Sydney and Melbourne specifications is lessening, it still exists.

INFLUENCE OF TARIFF.

Timber supplying countries will naturally be forced to cut their rough lumber in those sizes dictated by the Australian tariff. The influence of this tariff on trade during the past ten years is therefore important as indicating the trend of specifications during future years.

Size Imported.	Per cent. 1903.	Per cent. 1913.
Less than 6″ x 12″	66·2	55·1
6″ x 12″ and greater	33·8	44·9

The proportion of material over 6 inches by 12 inches in an Australian rough lumber cargo which was only one-third in 1903 has jumped 11 per cent by 1913. Since 1913 another duty discriminating at an additional sale of $1.20 per thousand against sizes under 6 inches by 12 inches has gone into effect. The result is that it may be expected over half the rough lumber imported into Australia hereafter will be in sizes equal in cross section to 6 inches by 12 inches.

This increase of duty on small dimensions of rough lumber is a direct encouragement of the use of Douglas fir, as this is the only timber available in quantity for export from which such large sizes may be cut in quantity without greatly incresing the price. The other important producers of rough lumber for the Australian market, New Zealand, Norway, Sweden and Japan find it difficult to produce 6-inch by 12-inch timbers in the lengths demanded.

Even in short lengths these countries cannot produce 6-inch by 12-inch without sending the whole log against which the Australian merchant objects because of the proportion of common inevitably produced. Buyers have even been heard to complain of the amount of common produced. in resawing Douglas fir 6-inch by 12-inch. The buyer will inevitably endeavour to discover the exporting mills (if there be any) prepared to ship 6-inch by 12-inch free from common when resawn into inch boards.

The countries supplying rough lumber in 1913 were:—

IMPORTS OF ROUGH LUMBER INTO AUSTRALIA, 1913.

Country of Origin.	Total quantity feet, B.M.	Per cent of total.	Value.	Quantity less than 2½ x 7 sup. ft.	2½ x 7 to 6 x 12 sup. feet.	6 x 12 and over sup. feet.
		%	$			
United States	251,282,327	80	6,573,336	70,648,061	57,181,505	123,452,761
New Zealand	14,276,571	4	607,892	7,508,355	3,739,867	3,008,349
Canada	12,260,707	4	260,870	3,384,394	5,291,061	3,585,252
Norway	5,124,373	2	159,441	143,691	4,959,434	21,248
Sweden	3,666,287	1½	123,460	269,350	3,396,937	–
Russia	1,827,616		46,809		1,827,616	–
Japan	1,675,751		49,929	508,622	1,017,352	149,777
India	650,724		85,867		98,892	551,832
Java	45,890		6,297	18,561	23,028	4,301
Straits Settlements	44,800		1,281	44,800		–
Dutch Borneo	38,463		1,228	1,206	5,472	31,785
Germany	25,604		2,040	23,278	2,326	–
United Kingdom	23,152		3,672	15,060	8,092	–
Other foreign	19,696		1,353	4,299	11,276	4,121
Other British Possessions	7,621		427	7,566	55	970
Australia	970		62			–
Total	290,970,552		7,925,964	82,597,243	77,562,913	130,810,396

A comparison of the trade of 1913 with that of 1903 shows that Australia is slowly adjusting herself to new sources of supply of rough lumber as well as in other timber requirements. This would be noticeable were it not for the endeavour being made by

the importing country, as pointed out above, to restrict imports to large timbers, an effort which in practice restricts the market for one-half of the total imports to Canada and the United States.

Europe is decreasing in importance as a source of rough lumber. European supplies which were 6 per cent of the total in 1903 were only 3·6 per cent in 1913. Japan which supplied nothing in 1903 had begun parcel shipments in 1913 and supplied over half of one per cent. The tide of trade which has turned toward North America as a source of rough lumber for Australia has not done so to Canada's advantage. While the proportion of rough lumber supply won by the United States has remained about constant at 86 per cent, Canada's share has been cut in half, falling from 7·8 per cent to 4 per cent in 1913 and even lower since that date.

The chief species of rough lumber now imported into Australia are given in the following table:—

PRINCIPAL SPECIES OF ROUGH LUMBER IMPORTED INTO AUSTRALIA IN 1913.

(Approximate quantities).

Species.	Quantity, Ft. B.M.	Per cent of Total.
Douglas fir	238,774,000	70
New Zealand white pine and rimu	50,000,000	14
Redwood (California)	21,000,000	6
Other New Zealand woods	14,250,000	4
Baltic	10,660,000	3
Spruce and hemlock	3,000,000	1
Japanese pine	1,676,000	–
Tropical hardwood	780,000	–
Total	340,140,000	

Until the total imports of timber into Australia increase, the only means of extending the use of rough Douglas fir lumber, which now constitutes 70 per cent of the total, will be at the expense of one of the more important species now comprising 30 per cent of the purchases of rough lumber from abroad. The possibilities of so doing will be pointed out when discussing the various present important uses of Douglas fir.

It will be noted that the list of rough lumber imported into Australia does not include Southern pine, yellow or pitch-pine, the timber which gives Douglas fir the strongest competition in Europe, Africa and South America. Australia uses trifling quantities of pitch-pine, but usually specifies Douglas fir in all situations where architects, engineers and builders in a similar climate in South Africa, and in Europe also, regard pitch-pine as necessary at any price. From this fact may be judged the possibilities for the extension of the use of Douglas fir in those regions now importing annually 1,400,000,000 feet of pitch-pine.

USES OF ROUGH DOUGLAS FIR.

The chief uses of the rough Douglas fir imported to Australia are:—

	Per cent.
General building purposes	75
Mining	9
Structural timbers in irrigation, bridging, railroads, heavy construction	8
Joinery	5
Wood-using industries	3

GENERAL BUILDING.

The only Canadian wood yet used to any extent in Australia for building purposes is Douglas fir. It finds its chief use for this purpose in New South Wales, Victoria and South Australia. In the other states the native timber, though slightly declining, still presents such keen competition that fir is used only in longer lengths of joists, and for rafters where native woods would be likely to warp or sag from their own weight.

IMPORTATION OF DRESSED LUMBER TO THE VARIOUS STATES IN 1913.

IMPORTS OF LOGS TO AUSTRALIA, 1913.

State.	Quantity of Rough Lumber in feet B.M., 1913.	Per cent of Total.
		%
New South Wales	158,334,000	47
Victoria	9,135,000	26
S. Australia	77,601,000	23
Western Australia	11,652,000	3
Tasmania	2,837,000	
Queensland	2,021,400	
Total	340,980,400	

The use of fir in buildings, even in the States where it is most used, is confined to upper floor joists, studding, plates, rafters and roof battens. There is no sheathing in an Australian house to provide use for common grades.

Even in the States where fir is most used, native woods are used for ground floor joists because of a fear that fir would rot. Native woods are rarely used for upper joists, but are used for studding frequently, especially by speculative builders.

No other imported wood competes with fir for building purposes. Hemlock and spruce in common grades would, however, be quite as acceptable.

The most striking feature of the fir used for building in Australia is that a large proportion of it is of a grade superior to what would be used for similar purposes in Canada. This is true both of the timber imported in the sizes in which it is finally used and of the timber resawn to order from 6 inches by 12 inches and other dimensions carried in stock. Undoubtedly fully one-half of the softwoods used for building purposes in Australia would give quite as good service if common Douglas fir, hemlock or spruce were used.

The Australian market is quite different in this respect from any in Europe or Africa, countries which now import by far the larger proportion of their requirements in common grades of spruce and pine from Scandinavia and the Baltic.

There are large areas in interior and North Australia, at present sparsely populated, in Queensland, particularly, where Douglas fir or spruce is not used for building purposes because of white ants. Should western cedar prove immune to white ant attacks, it would be a valuable wood for this region, the more so because of its extremely light weight which would give it an advantage in railroad freight cost. Cedar merchantable would be very suitable for studding in the bandings of the tropical regions.

GRAIN ELEVATORS.

No grain elevators have been constructed in Australia yet. All of the 100,000,000 bushels of wheat raised annually is sacked and stacked in sacks until shipped. A system of state elevators is now under construction. Though the more important build-

ings would undoubtedly be concrete, there is a possibility that in some regions the subsidiary buildings would be wood. The only wood suitable is imported softwoods.

Douglas fir is the wood used chiefly for concrete form stock, scaffolding and bracing in erecting important buildings. Here, as elsewhere, the grade is above requirement. The merchant who receives the order as a rule has not enough of a form stock near common grade on hand to fill it, but completes with whatever he may have in his yard, resawing it to order. Where an unusually good cargo has been received recently splendid high grade timber goes into this low grade temporary use.

Rough Douglas fir for construction purposes is sold at the same price per thousand feet as all sizes from 2 inches by 2 inches to 12 inches by 12 inches any length up to 30 feet. An additional charge of $2.40 per thousand feet for all the above specifications is made for lengths 31 feet to 40 feet inclusive.

Each additional inch over 12 inches up to 16 inches wide is charged extra at the rate of $1.20 per thousand feet.

Even if Pacific Coast manufacturers do not appreciate the inherent value in a timber that will produce 12-inch by 12-inch sticks 40 feet to 80 feet long, this value is recognized and demanded by the merchants in Australia.

PRICES OF DIFFERENT SIZED TIMBERS.

Consider the following comparative statement:—

Length of Timber.	Extra demanded by G. list per M Ft.	Base price, Sydney, January, 1915, per M Ft.	Extra demanded above base in Sydney, January, 1915, per M Ft.
	$	$ cts.	$ cts.
41 to 50 Ft.	3 00	46 80	13 20
51 to 60 "	6 00		15 60
61 to 70 "	9 00		20 40
71 to 80 "	13 00		25 20

Long timbers are only purchased where they are required and where no substitute is available. A much higher price may be properly asked for such a timber than for the smaller dimension that can be cut from any tree. This extra price should, however, go to the owner of the tree and not to a dealer in the produce. The extra value of the long timber is in the stumpage and manufacture and not in the handling.

The price at which timbers larger than 12-inch by 12-inch are sold to the public should be illuminating to the manufacturers:—

Size.	Extra above G. list base, received by manufacturer.	Sydney base at January 1915.	Extra above Sydney base received by Sydney distributor, Jan. 1915.
	$	$ cts.	$ cts.
31 to 40 ft. long.		46 80	
14" x 14"	1 00		2 40
16" x 16"	2 00		5 00
18" x 18"	3 00		15 00
20" x 20"	4 00		20 00

The manner in which extras are charged for select and clear in Sydney is worthy of attention:—

—	Extra above base of G. List.	Base in Sydney.	Extra above base in Sydney.
	$ cts.	$ cts.	$ cts.
Select or slash grain, 1″ x 6″	6 00	46 80	6 00
Clear, 1″ x 6″	7 50	...	12 00

The Sydney merchant makes the same extra charge for select as is made by the shipper, but in picking over and resawing his merchantable cargo he secures a large quantity of select at the price of merchantable. Although this principle applies equally to clears, he finds it possible to charge twice as much extra for clears as he pays to the producer.

The moral in this for the lumber manufacturer exporting to Australia is that they do not properly appreciate the value of large timbers and high grades. The distributor realizes upon the possibilities of our timber asset and the manufacturer does not.

The price competition between Douglas fir and native hardwoods, the class of timber which stands between Douglas fir and complete dominance of the market, is illustrated in the following table:—

Prices of Rough Lumber, Sydney, January, 1915.

Dimension.	Price of Douglas Fir.	Price of New South Wales Hardwoods.
	Per M Ft. B.M.	Per M Ft. B.M.
1″ × 4″ & 1″ × 6″	$ 46 80	$ 50 40
2″ × 3″ mild run	...	48 00
2″ × 3″ × 17′–20′	$ 44 40	50 40
2″ × 4″ × 17′–20′	44 40	55 80
2″ × 6″	44 40	50 40
3″ × 5″ & 6″	44 40	54 00
4″ × 4″	44 40	57 60
6″ × 6″	45 40	60 00
8″ × 8″	44 40	62 40

Douglas fir, in addition to being lower in price, possesses the advantage of being available at the price quoted in any length up to 30 feet, whereas the native timber is only easily available in lengths under sixteen feet. Where native timber is required in longer lengths, higher prices must be paid and the supply even then is uncertain.

The retail prices quoted above were being obtained for Douglas fir which cost, landed and duty paid at Sydney, about $32 per thousand feet.

USE OF DOUGLAS FIR FOR SILO STOCK.

The growing dairy and stock industry of Australia is likely to lead to a use of Douglas fir for silo stock. Silos are yet few in number and such as are in existence are chiefly pits or built with native hardwoods. The latter are unsatisfactory and Sydney merchants occasionally ship Douglas fir silo staves to the interior. The redwood exporters through a representative are investigating the possibilities of developing a market for redwood silo stock.

SHAVINGS THAT WOULD NOT BURN.

An instance of the happy-go-lucky methods ruling in lumber salesmanship is afforded by the manner in which city building inspectors in Australia, who absolutely determine what species are to be admitted to all public buildings and who thus greatly influence the species used in private buildings, are allowed to acquire their ideas concerning Pacific coast woods.

The chief municipal inspector and engineer in Melbourne was building at home a redwood lattice fence. He left the shavings and scraps to light the laundry fire. Returning home in the evening, he found that the laundry fire had refused to burn and had caused untold domestic derangements. Struck with the idea that here was the fireproof wood for which he had been searching, he hastened to experiment further with what remained of the redwood scraps.

The result of the accident in lighting the laundry fire has been that in every building erected under his supervision redwood is the only wood allowed to enter halls and stairways.

If there is ground for this ruling, proper salesmanship would have discovered it and convinced all public officials concerned years ago.

If there are no grounds for their arbitrary exclusion of all other species, proper salesmanship by those interested in adversely affected species would have demolished the fireproof redwood theory before this.

Another engineer in charge of public works discovered dry rot in Douglas fir joists in his residence, due to faulty construction. Since that date no Douglas fir joists are accepted in ground floor work under his supervision.

MINING TIMBERS.

Douglas fir is the only wood imported to Australia for use in mining operations.

Imported woods for mining purposes are used chiefly in South Australia, where they are imported through Port Pirie for the Broken Hill mines, and in Western Australia, where importations are made through Freemantle for Coolgardie and Kalgoorlie gold fields.

The Queensland mining districts, which are growing in importance, also those of Tasmania, depend chiefly on native timbers excepting where light and very strong timbers are required. The prospects are that the use of Douglas fir will increase in mining operations in Queensland.

One of the earliest uses of Douglas fir in Australia was in the gold mining districts of Ballarat and Bendigo. The production from these camps has greatly decreased, native timber still supplies a great proportion of their requirements and the consumption of fir is now of little importance.

Fir has, however, given great instances of durability in the Bendigo and Ballarat mines, holding place for twenty years and more.

Through Western Australia is a great timber exporting state, the mines of that state find it necessary to use Douglas fir because of the large sizes in which it can be secured, and because of its light weight in comparison with the native hardwoods, a factor of great importance both in the railroad freight to the interior, the wagon haul from the railroad to the mine and the working of the timber and the placing of it in the mine. The native hardwoods average 360 board feet to the ton weight and Douglas fir averages 800 feet.

A few hundred thousand feet of Douglas fir are used annually in mining operations in Western Australia, chiefly in the form of 9-inch by 9-inch for timbers, shaft and gallery sets. It is considered durable for this use.

The mines buy their requirements as needed through brokers or dealers at Perth.

Broken Hill is the chief user of mining timber in Australia. The mines, which use 18 to 20 board feet for every ton of ore raised have had 28 years experience of Douglas fir and it now constitutes 90 per cent of the timber used. About 18 to 20 million feet of Douglas fir are imported to the mines yearly.

It is used above ground for extensive headworks, ore bins, stamp mills and buildings. Buildings, ore bins, headworks up over twenty-five years in the hot desiccating climate of Broken Hill are sound.

The greater part of the timber is used underground where it is exposed to terrific pressure for three to six months then buried. Douglas fir is preferred for such use to all the imported timbers yet tried, and to native hardwoods for the reason that it is cheaper to handle and bends and gives warning before breaking.

A fair proportion of the Douglas fir mining timbers are used in sets in shafts and drives used ten to twenty-five years. It is estimated to give an average life in such situations of fifteen to twenty years. Douglas fir 6-inch by 10-inch square sets put in twenty years ago are still sound. The moisture content of the atmosphere, averaging about 100 per cent, is stable and subject to variations.

Timber used above ground is placed on concrete footings.

Mining timbers for Broken Hill, known as Port Pirie cargoes, have so improved in grade owing to competition amongst exporters that the cargoes now being received, though still described as mining grade, are for the most part equal to merchantable. The grade higher than demanded, is sold at mining grade prices and put to mining uses. Much good select and clear goes underground for props.

The usual specification for Broken Hill is well known, 8-inch by 10-inch and 10-inch by 10-inch by 12 feet, 14 feet, 16 feet, 18 feet and 20 feet. This timber is purchased in cargo lots only, discharged at Port Pirie and railroaded several hundred miles to the mines, where it is cut to shape. Large stocks are carried at Port Pirie and fair stocks at the mines.

Very little merchantable is specified; sufficient merchantable comes in the mining grade. Such merchantable as is specified is 20 inches by 20 inches and over in long lengths, sizes not imported in mining lengths.

The average annual purchases of the Broken Hill mine does not show any sign of increase and must soon decrease seriously. The life of the field is estimated at less than twenty years.

The position of Douglas fir in this field is strong. The comparative costs of timber from the various possible sources are:—

Douglas fir	$30 20	per M. ft. B.M.
Queensland timber	37 44	"
Tasmanian stringybark	47 52	"

A substantial increase in the f.a.s. price of Douglas fir would decrease the amount used.

It is interesting to compare the use of Douglas fir for mining purposes at Broken Hill and on the Rand in South Africa, two climatically similar regions. The Australian Eucalypts are not used to any extent at Broken Hill, Douglas fir being adopted, all factors considered, as the most suitable timber. On the Rand, on the other hand, pitchpine and Australian Eucalypts are used to a greater extent than Douglas fir, the latter not being considered sufficiently strong or durable. One species of Eucalypt (E. viminalis), although a native of South Australia and not used to any extent in the mines of that state, has in some way become favourably known to mining engineers in Africa, and is extensively grown in plantations for the supply of timbers to the mines.

Broken Hill mining men have in some way fallen victims to the idea that all Canadian Douglas fir is heavier than the United States Douglas fir, so much heavier that the extra freight on the Canadian Douglas fir, from Port Pirie to Broken Hill, is a serious item of expense. It is claimed by purchasing agents for the mines that United States Douglas fir averages 720 board feet to the long ton of 2,240 pounds and that Canadian Douglas fir is appreciably heavier.

This theory has resulted in absolutely barring all Canadian quotations on the last 150,000,000 feet of Douglas fir purchased for Broken Hill.

It should be possible to demonstrate to the purchasing agents for the mines that grade for grade Canadian timber does not average heavier than that from the United States. Tests should be made and the results conveyed to Broken Hill purchasers in a convincing manner.

PUBLIC WORKS.

The use of imported timbers is proportionately less in Australia for public works than in other countries depending largely on outside timber supplies.

Douglas fir is the only imported wood used in the form of timbers for irrigation works, falsework, trestles and like heavy construction.

Up to the present, Australia has depended upon native woods for heavy timber construction. Especially around harbour and seaport works, native timbers, because of their great decay and lower resistant powers, are used exclusively.

Native timbers have been used exclusively for the greater part of the railway construction undertaken up to date. Most of the railway lines in Australia hitherto constructed have traversed or started from native forest areas from which could be secured excellent hewn timber.

The use of Douglas fir for heavy construction will not reach such proportions as the use of Douglas fir for building purposes. Nevertheless, a more increased demand is to be expected. Heavy construction in cities now relies chiefly upon Douglas fir, because of its cheapness, lightness and ease in working, even for those lengths and dimensions in which native hardwoods could be secured. Railroad construction is now being pushed further into treeless regions, where the light weight of Douglas fir again favours its use. The building of irrigation projects involving dam and canal construction is dependent chiefly upon Douglas fir.

The outlook is for a wider use of Douglas fir timbers.

The greater part of the timbers used are for temporary purposes. Hemlock would prove as suitable as Douglas fir.

JOINERY.

The joinery trade which covers the manufacture from rough timber of all finished goods used for building purposes, such as sash, doors, architraves, stair and porch fittings, and other planing mill products is almost altogether in the hands of the merchants who import and carry stocks at the chief ports. The merchants at the ports manufacture much of this class of material used by the population in the interior.

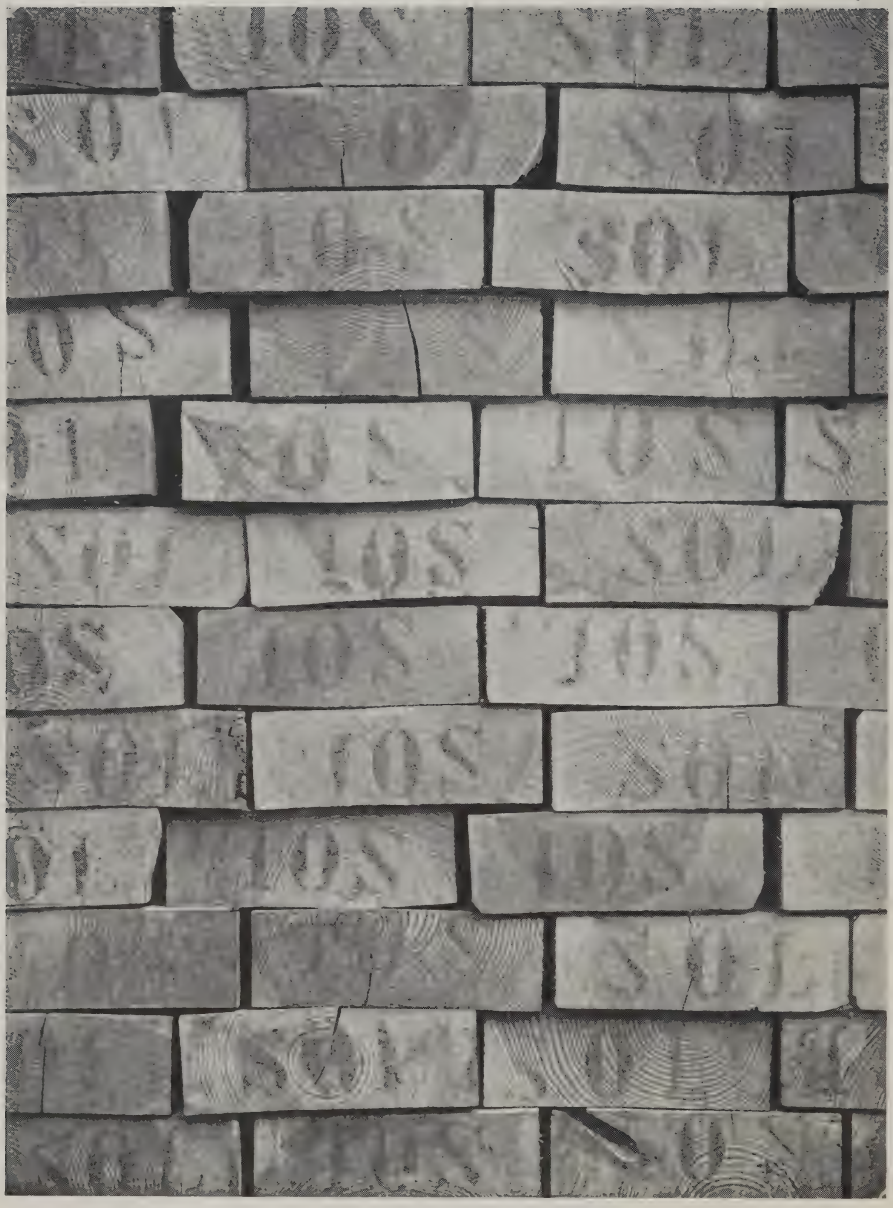
The joinery trade is almost entirely dependent upon imported woods. The few Australian woods suitable for the trade have become so rare and valuable that they are beyond the reach of the ordinary purchaser.

In the early days of the Douglas fir import trade in Australia the wood was considered distinctly unsuitable for dressing or working up into any manufactured or finished form. Scandinavian deals both red (pine) and white (spruce) were the standard raw material used in woodworking shops.

Even yet the use of Douglas fir is in the development stage. Its proportionate use in competition with Scandinavian deals varies in every city. It is least in Freemantle and Perth where the competition of deals is keenest, it increases to the east in Adelaide and Melbourne and reaches its highest proportion in Sydney where Douglas fir constitutes forty to fifty per cent of the planing mill stock used.

In the same town the attitude of individual manufacture towards Douglas fir varies greatly.

The situation demands attention by Douglas fir manufacturers. If a few of the more adventurous and progressive manufacturers, formerly dependent on Scandinavian deals, of which 8—10,000,000 feet are imported annually for joinery, experiment with Douglas fir and find that they can select, chiefly from their merchantable yard stocks, a grade of Douglas fir which it is to their advantage to use in their business in proportions as high as forty to fifty per cent, there is manifestly a possibility by salesmanlike methods, of hastening the conversion of the rank and file of manufacturers from Scandinavian deals to Douglas fir.



An end view of third grade 3-in. x 9-in. Swedish red deals, used largely in Australia, Africa and the United Kingdom for building and joiner.
All Scandinavian and Russian timber is branded in this manner.
Many deals are waney covered and nearly all contain heart.

WOODS USED FOR SHELVING.

Shelving, which was at one time wholly imported dressed, is now dressed in the local planing mills from rough lumber.

Western soft pine and redwood which were used to a great extent are now, on account of price, being displaced by Douglas fir and western spruce.

The retail prices of the imported shelving used is given below:—

Species, 1" x 12"		Price Melbourne, June, 1914.
White pine	per M.	$96 00
Western soft pine	"	90 00
Redwood	"	76 80
Douglas fir	"	55 20
Spruce	"	50 00

In Sydney native woods are used to a great extent all of which cost $15 to $20 per thousand feet more than spruce or Douglas fir.

There is likely to be a continuous increase in the use of Douglas fir and spruce shelving.

It would be to the advantage of Canadian export trade if British Columbia producers of western soft pine would come to arrangements with Canadian exporters for the sending of parcel shipments of western soft pine shelving and clear grades to Australia. As good prices can be obtained for export to Australia as can be secured in any other market, and Canada's ability to supply this material would assist Canadian exporters in making up mixed cargoes and supplying all the needs of the Australian purchaser.

There is also a possibility of working out a grade, say, of fine grained yellow fir, of a high degree of suitability for joinery stock, for which a higher price could be secured.

The mouldings, architraves, skirtings, cornices, railings, facias, sash and frame materials used in building operations in Australia are practically all made in the country from imported lumber. Swedish deals were first used and still are most common in Perth and Adelaide. Redwood now controls the market in Melbourne and Sydney. Douglas fir is being used in an amount less than 5 per cent of the total in Melbourne and probably one-tenth of the total in Sydney since the war.

Redwood, however, is used for all classes of mouldings and Douglas fir for only a comparatively limited number of lines.

The possibilities for increasing the use of Douglas fir in mouldings are enormous. With an increase in the use of this wood in moulding will go an increase in doors and three-ply panels.

The chief obstacle in the way at present is the fact that, although Douglas fir moulding stock goes to planing mill $12 to $15 cheaper than redwood, both are sold in nearly all cases at exactly the same price. The Australian manufacturers see no advantage in letting the public have the benefit of the cheaper wood.

Co-operation between the producers of Douglas fir and varnish and stain distributors or manufacturers in Australia to demonstrate the best methods of treating Douglas fir would lead to an increased demand for interior trim from the public and from architects.

ADVANTAGES AND DISADVANTAGES OF REDWOOD.

Redwood is used annually to the extent of about 20,000,000 feet for joinery, and western yellow pine to the extent of two or three million.

Redwood possesses the great advantage of being available in great widths, of being absolutely clear and of being easy to work. It possesses the serious disadvantages of being so soft as to be easily damaged, presenting invariably a depressing sombre finish, and of being more costly than Douglas fir.

In January, 1915, the price of one inch clear redwood was $68.40 per thousand feet and the price of one inch clear Douglas fir, the price of which had already been shown to be unduly swelled by the exorbitant distribution profits was $58.80.

Nevertheless, the use of redwood for joinery and interior trim exceeds the use of Douglas fir. Furthermore, though faced in their competition against Douglas fir with the handicap enumerated, the redwood exporters have found it advisable to maintain in Australia an expert demonstrator and student of lumber uses who will show builders and architects how redwood may be varnished and stained so as to imitate the effects of Douglas fir, and every way consistent with good salesmanship induce a greater use of redwood.

On the other hand, Douglas fir, which possesses many advantages over redwood, noticeably those of cheapness, resistance to injury and variety of effects possible, is receiving no expert assistance.

Although redwood is $15 to $17 higher in c.i.f. price than Douglas fir, and is about $10 higher in retail price for rough lumber, the cost of the two woods is the same to the buyer of interior trim, such as skirtings, panels, architraves. Again the distributor absorbs the profit and with no advantage to the producer, the man making the sacrifice, deprives Douglas fir of its chief value in the Australian market, its cheapness.

DEMONSTRATION OF THE BEAUTIES OF DOUGLAS FIR.

A rapid increase in the use of Douglas fir could be induced by just such expert demonstration. Such prejudices as remain against its machining qualities could be overcome or reduced by demonstrating that knives set for redwood must be put in a different condition for Douglas fir. Those architects who are seeking relief from the dead brown effects common to redwood interiors could be shown how the many finishes possible to Douglas fir may be produced. Architects who examined the finished doors sent out by the British Colombia Forest Branch had previously refused to believe that such striking and attractive results were possible with the wood.

A great extension in the use of Douglas fir for joinery is possible if house builders are made aware of the beauties of the wood for interior finish. This increased trade may be secured quite as easily if the exporting price of the article is increased as if it remained at its present level and a grade of lumber for interior finish and joinery is developed. The best results are not possible so long as the Australian manufacturer depends largely on picking his factory stock for interior finish from merchantable shipments.

WOOD USING INDUSTRIES.

The wood-using industries of Australia, aside from box factories and the planing mills discussed above, are not important. There is a probability that they will increase with the growth of the country and with the increasing tendency of Australia to manufacture her needs within her own borders.

The estimated consumption of timber in the wood-using industries of the continent (aside from box factories) is 40 million feet. Only about seven million feet of this is Douglas fir.

The chief industries using rough Douglas fir are railway shops or car-building plants, wood pipe factories and mattress factories. Small quantities of the timber are used in many other industries.

Strange anomalies exist in the use of Douglas fir in the manufacture of railway passenger and freight cars. In Western Australia, a state possessing large quantities of hardwoods of species exported to England for car construction timber, Douglas fir is used for freight truck sides and decking. In the hot, dry climate of West Australia, equal to that of South Africa, where Douglas fir is refused in favour of the more expensive pitchpine, Douglas fir has given fifteen years' satisfactory service in the decking sides and ends of open coal and other tucks. Throughout the other states,

where on account of the greater scarcity and greater cost of hardwood timbers the use of Douglas fir might be expected to be more general for freight trucks, it is used not at all or in limited quantities.

GOVERNMENT RAILWAY REQUIREMENTS.

The Government railways of nearly all the States use Douglas fir for cant rails, passenger car stringers and sills, upper and lower longitudinals and for running boards. In such positions it is stated by the engineers to give very satisfactory service, one railroad giving it an average life of thirty years. This is quite contrary to the attitude of railway officials in South Africa and other portions of the Empire, where Douglas fir is considered unfit for railway carriage construction.

Even in Australia the use of Douglas fir for railway work is not uniform. Although in every other state it is used for car construction the New South Wales railways yet admit it for rough construction only.

Swedish deals are still favoured and before the war were used to the extent of several million feet yearly in car shops for truck sides, roofing and flooring, uses where Douglas fir would be cheaper and more wear-resistant.

Practice in purchasing Douglas fir varies amongst the various railways. Some purchasing departments import clear stock, others select from stocks of merchantable held by merchants. Instances were noted where sills and cant rails 40 to 60 feet long were sawn from merchantable stock. This can only be the case where the manufacturer has exported a valuable grade of timber for much less than it is worth or where the user, in accepting merchantable is using a grade for purposes for which it was never intended, a policy which does not give the timber a fair trial.

A little pitch pine is still used in Australian railways for purposes for which specially selected Douglas fir would suffice.

The pitch pine used in railway car building cost in normal times $55 to $75 per thousand feet. During the war the price has gone to $125 per thousand. That a million or more pitch pine should be used in railway workshops annually at these prices when Douglas fir at a fraction of the price would serve is one of the many illustrations of the necessity for more salesmanship in marketing Douglas fir.

An indication of the failure of the Douglas fir exporters to secure a price representing the value of their product exists in the case of the Victoria State railways, which pay only $44 per thousand feet for a grade of Douglas fir fit for car stringers and cant rails, uses requiring close grained select and clear sticks 9 inches by 20 inches by 40 feet-60 feet, and pay at the same time $65 per thousand for pitch pine boards 1 inch by 12 inches in lengths, suitable for running boards and stepping.

The use of Douglas fir in railway shops is limited chiefly by the desire to use native timbers. Native timbers possess many valuable qualities but are difficult to secure thoroughly seasoned in the necessary sizes and quantities and are difficult to work. Douglas fir is cheaper. The railway officials endeavour constantly to use native woods. Unless the seasoning of native timbers is greatly improved, Douglas fir will win out in the long run for many purposes, even if the price should be increased, particularly if a well selected grade adapted to manufacturing purposes is constantly supplied.

Douglas fir is used to a limited extent in furniture, mattress and piano factories for framing purposes. The consumption is very small but by diligent selling might be increased because of its cheapness, freedom from defects and ease of working.

All wood pipes used in Australia for irrigation, municipal, mining and other water supplies are of Douglas fir. Clear rough boards chiefly 1¼-inch by 4-inches are imported. Canadian shipments are the best received up to the present. The consumption has been up to 2,500,000 per year.

Large quantities of manufactured wooden goods, bridge sections, tent poles, handles, vehicles, cases, furnishings were required to equip the Australian troops. Douglas fir and Pacific coast spruce, the cheapest, lightest, most easily worked timbers

available in any needed sizes, were used, but were gradually eliminated in favour of local species. No substitute could be found however for Douglas fir for portable bridging sections.

The wood-working industries of Australia are in their early development. The proper uses and treatment of the great variety of native timbers has in few cases reached its final development. Nevertheless, Douglas fir and spruce will assume much greater importance than heretofore and opportunities exist even now for enlisting their sale and use.

DRESSED LUMBER.

The dressing and seasoning of native woods being difficult, the whole of Australian requirements of dressed boards were for long imported. Even now, with a duty of $9.60 per thousond on all dressed lumber, a very great proportion of the flooring, ceiling, lining, partition stock and weather boarding required are imported.

In spite of constantly increasing duties, imposed in order to foster the use of native woods and to restrict imports to rough lumber only the quantity of dressed lumber has grown rapidly, as shown in the subjoined tables:—

Year.	Quantity of dressed lumber imported per M Ft. B.M.	Per cent increase over 1903.
		p. c.
1903	24,764,000	.....
1908	48,206,000	82½
1913	82,471,000	233

The increasing consumption of this class of imports, in spite of growing tariff barriers, to the point where as at present it is equal to one-quarter the volume and one-third the value of the rough lumber imports, renders it a class of trade well worthy the attention of Canadian shippers.

The following table shows the amount and origin of the importations in 1913, when the duty was $7.20 per thousand feet:—

Importation of Dressed Lumber into Australia, 1913.

Countries of Origin.	Quantity in Feet B.M.
	Ft.
Norway	56,251,228
Sweden	23,571,012
United States	1.938,088
Russia	623,096
Germany	63,737
Netherlands	9,456
Other British Possessions	6,771
United Kingdom	3,537
Other Foreign	1.520
	82,471,445

The Scandinavian countries, which do the greatest export trade in dressed lumber of all countries in the world, initiated the Australian trade, and during its development have improved their position.

Canada has rarely entered the trade and the position of the United States has weakened in ten years.

Country of Origin.	Proportion of Australian Dressed Imports Supplied.		
	1903.	1908.	1913.
	p. c.	p. c.	p. c.
Norway	71	79	68
Sweden	15	17	28
United States	12	3	2

THE EXAMPLE OF SCANDINAVIANS.

The achievements of Norway and Sweden in this particular bear a moral, particularly for Eastern Canada and possibly for Western Canada. Norway, because of diminishing forest resources, first developed the practice of exporting her lumber in the most highly manufactured form. Norway had built up a large trade in dressed lumber, while Sweden was still confining her efforts to selling rough lumber. Recent years have brought to Sweden the fear of over-cutting her forest resources and the necessity of building up exports, not so much by increasing the volume as by adding more labour and increasing the value. Sweden has consequently caught up on Norway, increasing her proportion from 15 per cent, in 1903, to 28 per cent of the total in 1913.

These two countries, with inferior forest resources, by concentration on manufacturing methods have captured the dressed lumber trade, not only of Australia, but of Africa and South America. Meanwhile Canada has continued to export rough lumber only.

The timber from which Norwegian and Swedish dressed lumber is made is white spruce (*Picea excelse*) and a red pine (*Pinus sylvestris*). About ninety per cent of the Australian imports are white spruce.

The trees from which the lumber is cut are small, barely large enough to produce a 3-inch by 9-inch deal. The boards are full of tight knots, and none are free from sap.

The manufacture and grading are excellent. The lumber is all cut so as to be full size after six months air drying. There are no manufacturing defects, and the method of dressing in machines with fixed knives produces a smooth waxy finish.

All Scandinavian dressed stuff is very carefully graded. Each manufacturer has an individual brand for each grade, and while manufacturers differ a little in the standard of grading, each adheres to his own standard with such remarkable consistency through long periods of years that the goods are sold on brand alone. Certain favoured brands command a premium in price. The brands are stampped on each of every board with a gelatine hammer. The boards are tied with lath yarn in bundles of six or eight, each bundle containing one length only.

In normal times dressed timber is imported from Scandinavian mills, often through London agents, both in parcel lots or in the frequent Scandinavian or German mail and freight steamer lines, and in cargoes. Large stocks are carried by many Australian merchants, some stocks amounting to 10 to 12 million lineal feet.

These factors, the familiarity of Australians with the timber from the earliest days, its excellent manufacture, perfectly standardized grading, its lightness and ease of working, and the ease with which small quantities, all absolutely true to grade, may be bought, have enabled Scandinavian dressed spruce and pine flooring, ceiling, lining and weatherboarding to monopolize the market.

A certain amount of native dressed timber is used, particularly in the markets most accessible from West Australia and Tasmania. The dressing of Victorian, Queensland, New South Wales and New Zealand hardwoods, for flooring particularly, has increased in proportion around Melbourne and Sydney. A few dry kilns have been

started to prepare native woods, and in Melbourne a state dry kiln is operated where flooring is dried or machined. The quantity of native woods dressed has increased during the war.

Nevertheless imported softwoods dominate the market. The proportion in which dressed lumber is imported to the various states is shown in the following table:—

Importation of Dressed Lumber to the various States in 1913.

State Importing.	Quantity Ft. B. M.	Per Cent of Total.	Proportion of rough lumber imports taken by this State.
Victoria	43,916,000	53	26
New South Wales	22,464,000	26	47
South Australia	11,832,000	14	23
West Australia	3,052,090	4	3
Tasmania	1,202,000	1½	..
Queensland	2,900	..	..
New Territory	1,400	..	..
Total	82,470,300		

Imported spruce, thick with tight knots, forms the most important flooring, not only for workmen's cottages, in which it is the universal flooring, but also for a very large proportion of better class houses and public buildings.

Imported joint or beaded spruce lining and ceiling is the most common lining, ceiling and partition stock in nearly all buildings. Similarly, spruce weatherboarding is used to a great extent throughout the country in competition with native woods.

Particularly in the growing important trade of the interior of the continent, where rail freight is an important factor, dressed spruce lumber is used in yearly increasing quantities.

Dressed spruce, because of its convenience, has been used to an important degree in building railway carriages, and as the common lumber for rough sheathing where temporary fences, partitions or walls are built. This is particularly the case in all cities excepting Sydney; in Sydney Douglas fir is displacing dressed spruce for such purposes.

FLOORINGS.

The competition to be met in the Australian market by Canadian flooring is indicated by the following statement of prices ruling in the Sydney market January, 1915 (before the war's effects were felt) for the chief species and sizes in use:—

Species.	Finished size to cover.	Retail Price per M Feet B.M.
		$ cts.
New Zealand rimu	4 x $\frac{7}{8}$	57 60
	6 x $\frac{7}{8}$	56 40
New Zealand kauri	4 x $\frac{7}{8}$	81 60
	6 x $\frac{7}{8}$	79 20
	6 x $1\frac{1}{8}$	98 40
Australian hardwood	$5\frac{1}{2}$ x $\frac{7}{8}$	56 40
	$5\frac{1}{2}$ x $1\frac{1}{8}$	57 60
Douglas fir	$3\frac{1}{2}$ x $\frac{7}{8}$	57 60
	4 x $\frac{7}{8}$	62 40
	$5\frac{1}{2}$ x $\frac{7}{8}$	57 60
Baltic white	4 x $\frac{7}{8}$	64 80
	6 x $\frac{7}{8}$	62 40
	6 x $\frac{3}{4}$	54 00
	6 x $1\frac{1}{8}$	68 00

This one alleyway, containing Baltic flooring, is only one of eight similar in size, constituting a Melbourne merchant's stock of Baltic dressed lumber.

All floorings are in random lengths of ten to twenty feet and where large quantities of any special length are required an extra charge of $4.80 per thousand is made.

The various Australian and New Zealand hardwoods when well manufactured and seasoned should furnish the best available class of floors.

The use of floor coverings is so general in Australia, and the public is so wedded to softwood floors, that, taking the whole country into consideration, Baltic is by far the most common flooring.

The wider sizes of flooring are preferred, owing to their cheapness in laying.

The Douglas fir used is nearly all run in Australia, chiefly from imported strips in Sydney and from locally sawn strips in other ports. The Australian manufactured fir is inferior in quality to the Canadian manufactured, the work is rougher, the timber is not properly selected or dried and flat and edge grained are frequently mixed indiscriminatingly. It cannot be considered that Douglas fir flooring has yet been properly marketed in Australia. The importation of Douglas fir flooring is stated to have declined during the past few years.

The flooring trade in Australia is very important in volume and value and there are two possibilities for Canadian manufacturers. The chief competition to be met is 6-inch by $\frac{3}{4}$-inch and 6-inch by $\frac{7}{8}$-inch white Baltic, a full 6 inches in width without the tongue. Douglas fir manufacturers may find it unprofitable to manufacture flooring for export in the exact sizes in which Baltic is used in Australia. Nevertheless the trade is worth securing and can best be secured by meeting every desire of the consumer. A wide, well machined flooring, even if containing few or many small tight knots, can be sold in Australia if landed at a price which would enable the dealer to retail at a little less than the price of Baltic.

A soft white flooring is the most popular. Spruce flooring with many tight knots is preferred to clear Douglas fir. An excellent opportunity exists for Canadian manufacturers possessing spruce, balsam or possibly hemlock logs, to manufacture such a flooring, as near the exact Baltic specifications as possible.

The mail and cargo steamers sailing regularly to Australian ports afford an excellent opportunity of forwarding parcel shipments. The almost inevitable higher price of Scandinavian white flooring during the next few years because of the greater timber demand in Europe points to the present as an excellent period for developing the trade.

At times of normal freight rates spruce, balsam, hemlock, and Douglas fir flooring, delivered alongside vessel at Canadian ports, in sizes 6 inches by $\frac{7}{8}$ inches by 8 feet to 20 feet, random, odd and even lengths, at $25 per thousand feet $\frac{3}{4}$-inch charged as 1 inch, should find a ready entry to the Australian market. A 5-inch or $5\frac{1}{2}$-inch width, at slight lower price, would be acceptable.

Provided suitable shipping facilities exist, the spruce manufacturers of Eastern Canada who occasionally send rough deals to Australia should be able to make excellent headway in this flooring trade.

LINING AND CEILING.

Here, again, a comparison of existing prices shows an opportunity for Canadian trade extension:—

Species.	Finished Size (to cover).	Retail price, Sydney, January, 1915, per M. feet, B.M.
		$ cts.
Baltic White pine	Rabbetted, V.J.C.V. or B, 6″ x $\frac{3}{4}$″	32 40
	T & G., V. J. 4″ x $\frac{3}{4}$″	33 60
	Beaded or C.V. 6″ x $\frac{1}{2}$″	38 40
	" 6″ x $\frac{5}{8}$″	48 00
	" 6″ x $\frac{3}{4}$″	54 00
New Zealand white	T.G. or beaded 6″ x $\frac{1}{2}$″	38 40
" " Kauri	" 6″ x $\frac{1}{2}$″	60 00
Douglas fir	" " $3\frac{1}{2}$″ x $\frac{1}{2}$″	39 60
"	" " $5\frac{1}{2}$″ x $\frac{1}{2}$″	36 00

The prices quoted are for random, odd and even lengths 8 inches to 20 inches long. An extra charge of $4.80 per thousand feet is made for specified lengths and of an additional $4.80 for partition stock double dressed.

The widths and thickness stated are full.

Australian and New Zealand woods are used for lining only to a limited proportion of the total, and chiefly in Tasmania, West Australia, Sydney and Brisbane. Elsewhere the use of Swedish is universal.

The Douglas fir linings used are run in Australia from imported boards, and, considering the off sizes and the general lower quality of the machine work, offer but little inducement for the user.

Considering that the Douglas fir linings sold in the 5½-inch by ½-inch size at prices to compete with the Baltic are made in Australia, in quantities which do not give an opportunity for reducing manufacturing costs, from boards imported under a duty of $8.40 per thousand, that full-sized stock is imported, with consequent loss in duty and freight, whereas the ready manufactured linings could be imported at a duty of $9.60, it appears that there can be no reason for not adopting the cheaper course and exporting from Canada the ready manufactured stock by the convenient regular mail and freight steamer. The more nearly this stock can be produced to approximate the most used sizes of Baltic 6-inch by ⅝-inch, ½-inch and ⅝-inch, the more likely are the prospecets of trade.

The prospects for supplying Australia with her important requirements of dressed linings will be greater if there can be developed either on the Atlantic or Pacific coast a supply of spruce or balsam logs in conjunction with a mill specializing on the Australian requirements of dressed lumber. Clear lumber is not necessary and would not be appreciated. It is essential that knots should be sound, tight and smooth dressed. Hemlock with these qualities would be acceptable.

WEATHERBOARDING.

Weatherboarding is used on many workmen's cottages in Australia. The quantities imported annually are large in spite of the greater use of native hardwoods for this purpose than for linings and floorings.

The competition to be met in the supply of weatherboarding is indicated hereunder:—

Species.	Full Finished Size.	Retail price, Sydney, Jan. 1915, per M superficial feet.
		$ cts.
Baltic	7″ bevelled, 4 out of 2½″ x 7″ chamfered	61 44
Hardwood	7″ beaded or chamfered dressed	52 40
Kauri	Dressed rustic	76 80
Douglas fir	8″ and 10″ bevelled	60 00
"	9″ and 10″ "	62 40

Weatherboards in use in Australia are made in various patterns but the best prospects for exporting Douglas fir and spruce from Canada will be a plain bevelled board, square edged, cut two out of 1¼-inch by 7-inch, 8-inch or 10-inch. The most important competition to be met is that of Baltic, selling in normal times at about $60 per thousand.

The shelving imports of Australia have declined in recent years. The most important source is now New Zealand, with the United States second. The species imported and the retailed prices indicate Canadian chances for competition:—

Species.	Size.	Price, Melbourne June, 1914. M Ft. B.M.
		$ cts.
White pine	1 x 12	96 00
White pine	1 x 14	102 00
Western soft pine	1 x 12	90 00
Western soft pine	1 x 14	96 00
Redwood	1 x 12	76 80
Redwood	1 x 14	76 80
Douglas fir	1 x 12	55 20
Douglas fir	1 x 14	57 60

Douglas fir because of its cheapness is increasing in use. Western spruce and hemlock both have been used and are likely to become more popular.

DRESSED SHELVING.

A certain amount of dressed shelving is imported with dressed goods. The duty on dressed boards $9.60 per thousand as compared with $8.40 on rough boards is not sufficient to make it profitable to dress lumber in Australia. That most of the shelving is not dressed in Australia is due to the fact that the Australian merchant can buy large clear planks and flitches subject to a lower rate of duty at about the same price per thousand as the much less valuable smaller sizes.

Hemlock is growing in favour in Australia under the name of Alaska Shelving. Spruce is also shipped shipped under this name.

The usual specification is one-half in 12-inch, one-quarter in 14-inch and the balance in 16-inch and 18-inch widths, dressed to 13/16-inch and so invoiced.

Western soft pine shelving is also imported to a certain extent dressed from 1-inch stock both sides and both edges, 8-inch and up in width, not over 10 per cent under 12-inch.

Dressed shelving imported is bought largely on brand. A popular brand sold at $50 per thousand feet f.o.b. New York before the war.

The exports of dressed lumber from the United States to Australia are chiefly shelving.

The exports of dressed products to Australia has been unjustifiably neglected. The Swedish and Norwegian merchants who are handicapped by high priced stumpage of an inferior grade, and who possess no advantages in transportation have developed an increasing trade now worth $3,000,000 yearly. Canadians by starting with parcel shipments have here an unrivalled trade opening which with the return of normal freight rates may be developed.

LOGS.

The low duty on round or squared logs, 5 per cent ad valorem, has encouraged increasing imports. This trade first reached any importance in 1907. The growth of the trade has been:—

Year.	Quantity.
1903	213,000
1904	522,000
1905	177,000
1906	1,134,000
1907	12,452,000
1908	16,582,000
1909	11,336,000
1910	21,667,000
1911	29,902,000
1912	18,902,000
1913	23,438,000
1914	10,433,000

The source of the imports and the average value of the lumber are in the following table:—

Imports of Logs to Australia, 1913.

Origin.	Quality Feet B.M.	Average Value per M.
		$ cts.
Japan	14,423,000	20 45
Russia	8,688,000	30 95
New Zealand	195,000	24 62
Other Countries	20,300	47 28

SOFTWOODS FROM JAPAN AND RUSSIA.

The important imports are those of softwoods, coming wholly from Japan and Russia. In 1908 two-fifths of the imports were from Russia, the trade has recently turned to Japanese sources.

The timber imported is a soft pine, weaker than and somewhat similar to, inferior second growth white pine. The logs are 12 inches to 30 inches square and 12 to 16 feet long. The trees are evidently rather crooked. The logs are hewn with waney edges and contain many sound knots.

A large saw-mill was built near Melbourne with the object of building up an important lumber trade based upon importing logs. The enterprise has not yet been successful. The quality of logs imported for this mill, chiefly from Russia, were round, unhewn and were superior in quality to those supplied from Japan.

Distribution of Logs imported into Australia.

State Importing.	Feet B.M.	Per cent.
Victoria	14,215,000	61
New South Wales	9,217,000	39
South Australia	2.000	
Western Australia	1,000	
Queensland	900	
Tasmania	900	
Total	23,436,800	

The chief use of imported logs at the present time is for the manufacture of boxes and rough crating. The high tariff on box shooks has led several important box users to instal saw-mills for the manufacture of boxes and cases from imported logs.

It does not appear that Japanese logs, now the chief log imports to Australia, will be used in any quantity for lumber; the quality is too low to compete with Pacific coast woods and the cost of the lumber too great. The price of the logs c.i.f. Sydney was in normal times about $20 per thousand feet on a measurement producing about 12 per cent over run.

The supply of timber in Russia and Japan from which logs may be drawn is large. The importation at the present is chiefly in the hands of one Australian company who are agents for a strong Japanese exporting company.

A quantity of the logs imported are oak and ash from Japan to be sawn for the furniture and like industries.

Stock of hewn Japanese pine logs carried at one box factory.

The possibility of importing square or waney logs from the Douglas fir region is occasionally discussed in Australia. The chief reason that such a trade has not been developed is that logs would produce a grade of common lumber such as Australians have not been educated to use, and that Australians are now securing a high grade of merchantable at at least as low a price as any at which they could import logs, saw them and produce mixed common and merchantable lumber.

The cost of sawing in Australia is high. Breaking down 6-inch by 12-inch flitches into boards is charged at the rate of $6 to $8 per thousand feet.

The hope has frequently been expressed on this side of the Pacific that Australians would import logs and thus relieve this market of a small proportion at least of the common produced by the export trade. The remedy does not lie in this direction. It lies in a combination of exporters such as will compel foreign purchasers to take a fixed proportion of sound common with the other grades, a proportion which could be as easily used in the building operations of Australia as in the building operations of Canada.

DOOR STOCK.

Almost all the doors used in Australia, until about eight years ago, were imported. Since that time a successful effort has been made by means of the tariff to confine Australian purchases of doors to the products of domestic factories.

There being practically no native timber in Australia suitable for the common grades of doors, the importation of undressed door stock cut to size has been encouraged by a lower tariff than that applying to other rough lumber of small dimensions.

The tariff on rough door stock was, until December, 1914, $4.80 per thousand, and now is $7.20 per thousand. The tariff on dressed or partly dressed door stock is $14 per thousand. All door stock is imported in the rough form.

Since the increasing of the duty the imports of door stock have grown rapidly:—

Year.	Rough Door Stock Imported. Feet. B.M.
1903	None.
1908	1,012,000
1913	5,027,000

Almost all the door stock imported to Australia is purchased from the United States. The countries supplying the trade in 1913 were:—

Country.	Feet B.M.	Total Value.	Average Value.
		$ cts.	$ cts.
United States	4,810,000	208,708	43 40
Sweden	215,000	7,267	33 80
Canada	3,000	100	33 60
Total	5,028,000	216,075	

No door stock was imported from Canada in 1914. There are indications that Russia will hereafter compete in this class of material. Almost 600,000 feet were imported from Russia in 1914.

The imported door stock goes wholly to Sydney, Melbourne and Adelaide. The distribution in 1913 was:—

State	Quantity Feet B.M.	Per Cent.
Victoria	2,542,000	51
New South Wales	2,143,000	42
South Australia	341,000	7

The door factories in the other states rely upon using native woods or ripping up yard stock, chiefly Baltic.

Western soft and sugar pine were originally very popular for door stock. The increasing price of these woods caused the trade to turn to redwood, which now constitutes the greater portion of the imports. The higher cost of redwood, its softness and the restricted range of treatments possible with it have in recent years led to a more extended use of Douglas fir. The chief objection to the use of Douglas fir is that the belief exists that it costs more to work; factory managers estimate that this extra cost is 10 to 15 cents per door. In spite of this extra labour cost Douglas fir doors can be manufactured more cheaply than any other on the market. They are also stronger, harder and preserve their appearance better. Though cheaper to produce, they are sold at the same wholesale price as others. Douglas fir now constitutes less than 10 per cent of the doors manufactured in Australia. This use, which is growing, would grow even more rapidly if architects, builders and the private purchasers of doors and interior trim were better instructed regarding the effects to be obtained by the various finishes most suitable for Douglas fir.

Although the imports of door stock have been increasing, the manufacture of doors from ordinary lumber is also increasing. This is particularly true of Douglas fir doors, excellent material for which may be selected from merchantable cargoes. The use of Douglas fir for doors is more common in Sydney than elsewhere.

Redwood door stock is sold f.a.s. for $29 per thousand. The usual specification calls for several sizes of doors, but the 2-foot by 8-inch by 6-foot by 8-inch by 1½-inch door constitutes two-thirds of the total. The sizes imported for this door are:—

	Size of Pieces. 2/8 x 6/8 x 1½"	No. of Pieces. Doors.	Feet B.M.
Stiles	1½" x 4½" x 6'9"	2	7·5937
L. M.	1½" x 4½" x 3'4½"	1	1·8984
S. M.	1½" x 4½" x 1'7½"	1	·9140
T. R.	1½" x 4½" x 2'8½"	1	1·5234
L. & B. R.	½" x 9" x 2'8½"	2	6·0937
Total feet			18·0232

At $29 per thousand, the material (excepting panels) costs on a 35-shilling freight rate $47.84 per thousand feet, or 86 cents per door. The manufactured doors sold in normal times for $3.72 each.

Although inquiries have been made for Douglas fir door stock, especially for the Sydney market, quotations have been difficult to secure. It should, to enter the market, sell at a little less than redwood. Any person desiring to enter this trade may secure inquiries through business firms whose names and addresses may be obtained from the Commercial Intelligence Branch of the Department of Trade and Commerce, Ottawa.

Western soft pine door stock is also in demand and manufacturers in the interior of British Columbia who can deliver this material f.a.s. Vancouver at $38 to $40 per thousand should have no difficulty in disposing of it. Clear stock is required free from pitch seams, bundled twenty pieces to the bundle, each length and size bundled separately.

Door stock is usually exported to Australia together with lumber cargoes in quantities varying from 20,000 to over 100,000 feet. The regular cargo sailings from British Columbia offer an excellent opportunity of sending forward parcel shipments to Sydney and Melbourne the two chief markets.

The greater part of the redwood and yellow pine doors are painted. Douglas fir doors also are frequently painted.

This treatment of the timber deprives Douglas fir of one of its greatest advantages, its appearance. Selling it at the same price as redwood deprives it of its other advantage, its cheapness.

Painted doors and painted interiors militate against the use of Douglas fir. Energy should be devoted to popularizing stained finishes in Australia.

BOX SHOOKS.

About 75,000,000 feet of lumber is used annually in Australia in the butter, fruit and meat packing industries and in the distribution of manufactured and oil products. The consumption in Sydney alone is 30,000,000 feet. The growth in the fruit and meat industries is likely to be rapid and continuous.

Native woods are used to a limited extent only for box shooks. Even in West Australia and Tasmania where a fruit export trade is being built up and native woods are the cheapest and best in quality, imported wood is used for the greater proportion of the boxes. The Australian woods are too heavy, split in nailing, warp and being coloured, are not prepossessing in appearance and frequently stain the fruit.

There has been even up to the present time an expectation amongst the manufacturers on the Pacific coast that they will be able to develop in Australia a valuable export market for shooks. The Australian policy is however to cease importing ready manufactured shooks and to import rough lumber from which Australian box factories will make shooks.

CHANGES IN TARIFF.

Successive alterations have been made in the tariff to accomplish this object. The tariff on shooks has risen as follows:—

Year.	Duty on Dressed Shooks per M ft. B. M	Duty on Rough Shooks, per M ft. B. M.
	$ cts.	$ cts.
1902	7 20	3 60
1908	6 00 (on superficial measurement all dressed faces.)	6 00
1911	12 00	9 60
1914	14 40	12 00

With such a scale of duties it is natural to find that importations comprise a very small proportion, less than 7 per cent of the total. The importations in 1913 were:—

Imports of Box Shooks into Australia in 1913.

Country of Origin.	Rough Shooks.			Dressed Shooks.		
	Quantity in feet B.M.	Value.	Av. Value per M ft. B.M.	Quantity in feet B.M.	Value.	Av. Value per M ft. B.M.
		$	$ cts.		$	$ cts.
Sweden	2,024,000	83,812	41 40	18,000	840	46 66
Norway	1,079,000	43,673	40 40	.....	.....	.....
Canada	.....	.....	.....	1 014,000	33,638	33 17
Straits Settlements	222,000	5,462	24 00	38 000	1,612	42 42
United States	.....	.....	.....	194,000	7,670	39 53
Germany	119,000	5,332	44 80	49,000	3,340	68 20
Total	2,497,000	139,435	.....	1,378,000	56,023	.....

The importations of rough shooks have been steadily decreasing, they were about 4,000,000 feet in 1912 and 2,680,000 feet in 1914, every year showing a decline. Sweden and Norway have always held over 80 per cent of this trade.

The importation of dressed shooks on the other hand has shown more of a tendency to remain constant and in 1914 reached its greatest total 2,872,000 feet, of which 70 per cent was from Canada.

The imported rough shooks have have been used chiefly in the fruit and rabbit packing industries. The distribution amongst the various states in 1913 was:—

State.	Quantity.	Per cent.
West Australia	1,556,000	45
New South Wales	886,000	25
Queensland	490,000	14
South Australia	434,000	13
Victoria	131,000	3

The dressed shooks are used chiefly for gasolene and oil cases and packing higher grade food products. The importations in 1914 were distributed as follows:—

State.	Quantity.	Per cent.
New South Wales	2,018,000	71
Victoria	424,000	15
South Australia	359,000	12
West Australia	44,000	2

So long as the importation of shooks to Australia is maintained, Canada, because of cheap lumber and regular cargo steamer sailings, has the best opportunity in the Melbourne and Sydney markets. The Adelaide market for fruit boxes is also a possi-

bility for Canadian exporters. The importers purchase through timber brokers with whom Canadian exporters may get in touch by writing the Canadian Trade Commissioners at Melbourne.

The shooks from Norway and Sweden are spruce. Those from Canada and the United States are spruce and hemlock, chiefly hemlock. Hemlock gives good service but spruce is better liked.

The chief possibility for Canadian manufacturers is in the supply of flitches to the Australian box factories. The chief box users of Australia, such as soap factories, canners and packers, already have them under consideration. The numerous smaller users are supplied by box factories operated by timber merchants, or particularly in Sydney, by separate box manufacturing companies.

These factories at present use Japanese pine logs, Eastern Canadian spruce 3-inch by 9-inch deals, New Zealand white pine and Western spruce and hemlock. The comparative price of these woods c.i.f. and e is as below:—

Species.	Form.	Price per M ft. normal.
		$ cts.
New Zealand White pine	1″ and 1½″ x 12″ x 10′-20′	28 00
Japanese pine	Logs	21 00
Atlantic spruce	3″ x 9″ Deal	38 00
Local Plantation grown pine	Logs	20 00
Western spruce and hemlock	6″ x 12″	24 00

New Zealand white pine is the only wood yet used in Australia for butter boxes. Canadian spruce has not yet been tried and is not considered satisfactory because of the danger of tainting the butter. It will probably be used extensively when the facts are made known concerning the satisfactory use for butter boxes in Canada and elsewhere.

Japanese pine is used chiefly for soap and similar boxes. It is not equal in strength or quality to Western Canadian spruce.

Eastern Canadian spruce is the highest grade box timber used in Australia. The high price is, however, an influence against its wider use.

Small quantities of locally grown plantation pine are now coming into the market for the manufacture of boxes. The supply so far as it goes is the best available box material for most purposes excepting butter. Fairly large areas of this pine (*Pinus insignis*) are being planted yearly by the various state governments in Australia to provide a local supply of softwood lumber. About 10,000 acres of plantations now exist. The growth is very rapid; plantations 26 years old have averaged 60,000 board feet per acre.

The best source of box lumber appears to be western spruce. It is not well known, having not yet been used by some of the largest factories and only to a limited extent by others. Shipments, known as box grade, have been received. Except for occasional large knots, it fills every requirement. Hemlock will not compete when spruce becomes thoroughly known, unless it is sold for less than spruce. The chief objections to hemlock are its weight and liability to split under nailing or printing.

The Australian Inter-state Commission after investigating tariff conditions recommended that Canadian spruce be admitted to Australia duty free for box making purposes. This recommendation, if adopted, will result in the wiping out of shook imports of all classes and the creating of an important demand for Western Canadian spruce.

Character of hewn Japanese pine logs imported for box material.

VENEERS.

As is usual in countries where satisfactory joinery and panelling woods are costly, veneers are used in Australia for many purposes where thin boards, chiefly wide clears, would be usel in Canada. Large quantities of 3-ply veneer are used for dado paneling, door panels, passenger coach lining and for lining, backing and drawer fittings in the furniture industry. About eighty per cent is used in the furniture industry. A three-ply box and case industry is being developed. The use of veneer has grown rapidly as is shown by the following statement of importations:—

Year.	Quantity 3-ply imported.		Value.	Average value per square foot.
	Feet B. M.	Approximate superficial quantity square feet.		
			$	
1908	137,000	822,000	22,080	.027
1909	246,000	1,476,000	29,280	.013
1910	502,000	3,012,000	55,200	.018
1911	955,000	5,730,000	108,000	.018
1912	1,780,000	10,680,000	192,000	.018
1913	1,918,000	11,508,000	249,600	.021

The rapid growth in importations has been due to a recognition of the cheapness and greater durability of veneer as compared with the clear pine and redwood panels previously used.

The countries supplying three-ply veneers are:—

Country.	Approximate quantity superficial feet.	Value.	Average value superficial feet.
		$	
Russia	8,544,000	172,320	.020
Germany	1,464,000	25,920	.017
United Kingdom	792,000	27,840	.035
United States	294,000	15,360	.052
Sweden	213,000	3,552	.017
Netherlands	143,000	,688	.018

The growth in the Russian share of the trade has been very rapid; in 1908 Russia supplied only a little over 4 per cent of Australia's requirements, as compared with 74 per cent in 1913. Germany's trade increased forty-fold in the same time.

Almost the whole of this three-ply is alder or birch. Small quantities of mahogany, walnut, oak, ash and other ornamental woods are imported chiefly from the United Kingdom, Holland and the United States for furniture and railway carriage-building purposes.

Imports of Veneers.

The importation of veneers is distributed amongst the various states as follows:—

State.	Superficial feet of veneer imported 1913.
Victoria	4,668,000
New South Wales	3,762,000
South Australia	1,794,000
West Australia	822,000
Queensland	396,000
Tasmania	59,000

The furniture industry uses three-ply birch and alder in the 3 mm. and 4 mm. thicknesses. The prices in normal times were for No. 2 alder three-ply, a grade used in large quantities, 92 cents to $1.14 per hundred square feet f.o.b. Riga for 3 mm. and $1.10 to $1.26 for mm. This was landed to sell to Australian wholesale purchasers at $1.44 to $2.04 per hundred feet for the 3 mm., and $1.90 to $2.28 for the mm. First quality, which is used to a limited extent only, costs twelve to twenty per cent more than the second quality.

Small quantities of 5 mm. and 6 mm. are imported. The heavier thicknesses are used for table tops and outside pieces in furniture. 6 mm. wholesales normally in full sheets at about $3.75 per hundred. The sheets are in size from 36 inches by 48 inches imported in 6 mm. thickness in the following sizes:—

Alder three-ply is used, chiefly in 4 mm. thickness, for ceilings and interior finish as a substitute for lumber. It is cheaper than lumber or most of the patent composition boards. When painted the appearance is satisfactory.

Alder three-ply has also largely displaced clear lumber for door panels. It is now imported in 6 mm. thickness in the following sizes:—

40½″ x 10½″
39½″ x 10½″
38½″ x 9½″
39½″ x 9½″
41½″ x 10½″
36½″ x 10½″

for the various stock sizes of doors.

Second quality only is used for door panels. The doors when in use are painted.

The c. i. f. price in normal times for door panel stock was $2.32 per hundred for seconds and $2.68 for firsts. At these prices certain importers estimated the cost landed in the warehouse at 3½ cents per square foot.

The large panels are imported in bundles 18 to 24 inches thick strongly bound with strap iron. The contents of the bundle are protected by low grade sheets of three-ply used for covering. The door panel sizes are tightly bound with lath yarn.

The war has produced an active demand at high prices, which provides a favourable opportunity for Canadian manufacturers to enter the market. Canadian cottonwood, alder or birch should be perfectly satisfactory, provided that the gluing is waterproof and free from blisters, that manufacture and grading are even.

The transportation facilities, particularly from Western Canada, are excellent for this parcel business.

The names of Australian importers of three-ply may be secured from the Commercial Intelligence Branch of the Department of Trade and Commerce, Ottawa.

Quotations should be made c. i. f. or c. i. f. and e. The duty into Australia is $1.60 per board foot, the various thicknesses of veneer are reckoned for customs purposes into their actual wood content in board feet, four superficial feet of ¼-inch veneer constituting one board foot.

The high price of all three-ply and the great difficulty of securing supplies from Russia at any price has given an unusual opportunity for Douglas fir veneer. This was first imported to Australia after the beginning of the war and is now being placed on the market in all the chief ports.

It is used chiefly for dado panels and to a limited extent for door panels. Its final uses are by no means developed. It can never compete with alder in price. It can only reach its maximum use through an aggressive salesmanship that will show the better class of builders that when properly stained and polished it greatly excels any other form of paneling and is worth the increased cost. The use of Douglas fir three-ply will accompany a wider use of Douglas fir for doors and accompanying interior trim. This wider use is only possible if consumers are educated to its possibilities and decorators are taught the most satisfactory methods of achieving the most attractive results.

So long as painted doors and painted interiors are fashionable, three-ply alder will be the standard material for door panels and dado panels. Once the beauties of Douglas fir natural finish are recognized and appreciated and painted finish becomes unfashionable, the use of Douglas fir will rapidly increase.

The greater part of the Douglas fir three-ply imported has come from Canada.

Small quantities of veneer other than three-ply are imported annually. The total in 1913 did not exceed 160,000 superficial feet, one-half from the United Kingdom and one-quarter from the United States, the remainder from Germany and Russia. The importations of this class of veneer, being decorative woods chiefly, used for paneling and furniture, are decreasing yearly.

Laths.

The extensive use of plaster finish in Australia leads to a large demand for laths. There are practically no native woods in Australia suitable for laths. The whole supply is met from imports.

Imports of Laths.

Imports have grown rapidly from 18,524,000 pieces in 1903 to 46,338,000 in 1913. Imports are almost wholly from the Pacific coast:—

Country.	Numbers of Laths imported, 1913.	Total Value.	Average Value per M.
		$	$ cts.
United States	43,495,000	182,217	4 19
Canada	2,111,000	7,987	3 78
Japan	721,000	2,385	3 31

The Canadian export of laths to Australia is less now than it was in 1903. During the same period the United States exports to Australia have been trebled. Japan has only recently begun the manufacture and export of laths, the first shipments having been made since 1908. The Japanese laths are a soft white pine.

The lath imports are distributed in the various states as follows:—

State.	Quantity of Lath Imports, 1913.
Victoria	22,267,000 pcs.
New South Wales	17,275,000 "
South Australia	3,711,000 "
West Australia	3,084,000 "

Queensland and Tasmania depend chiefly upon native woods.

Lath shipments are made chiefly in parcels with lumber cargoes, and Canadian lath exports will increase automatically with lumber imports. Lath exports might also be increased by forwarding parcel shipments on the regular mail boats. Although a portion of the lath is imported at broken stowage rates, quantities come in at full freight rates.

Large quantities of lath are manufactured in Melbourne particularly, from imported Douglas fir pickets. The lath made in this manner are used for ceilings.

The duty on laths, which stood at $1.20 per thousand pieces in 1902, was raised to $1.80 in 1908 and to $2.40 in 1914.

Mouldings.

Australian importations of mouldings remain practically constant around 150,000 feet annually. Those imported are chiefly picture and decorative room mouldings. No imports come from Canada; over half the imports come from Germany and one-fifths from the United States. Canadian producers of picture frames, stock, or ornamental mouldings should get in touch with Australian importers through the Canadian Trade Commissioner at Melbourne.

The duty on picture and room mouldings is 35 per cent ad valorem, and on architrave skirtings and other mouldings, of which imports are practically nil, is $1.44 per hundred lineal feet.

Staves.

The tallow and vegetable oil industries of Australia use very large quantities of staves. The importation for breweries are also important. No Australian wood is used to any extent for staves.

The importations in recent years have shown a fairly steady increase from 314,000 pieces in 1903 to 3,640,000 in 1913. The industry is likely to increase with the agricultural development of the country and the increase of the South Sea trade.

The imports were in 1913 derived from the following countries:—

Country.	Staves Pieces.	Per cent.	Total Value	Average Value per M Staves.
			$	$ cts.
United States	1,306,000	36	45,873	35 12
Canada	1,147,000	31	23,150	20 18
Japan	923,000	25	26,961	29 21
New Zealand	236,000	6	12,566	53 24
Denmark	15,000		657	43 80
Sweden	10,000		336	33 60

Canadian stave exports have fallen off heavily since 1913. Japan has only begun supplying staves within five years, and in 1913 did one-quarter of the total business.

The staves from the United States and Canada are almost wholly Douglas fir. This timber is found to give excellent service, and is used almost wholly for shipping fats and oils.

The import of staves is centred chiefly in Sydney, as is shown in the following statement:—

State.	No. of Staves Imported 1913.	Per cent.
New South Wales	2,285,000	63
Victoria	984,000	27
Queensland	236,000	6
South Australia	134,000	4

Staves are imported both with lumber cargoes and in parcel lots. Canadian importers interested in this class of business have an opportunity of shipping in regular parcel shipments to Sydney. The Canadian Trade Commissioner at Melbourne can put Canadian manufacturers in touch with Australian importers.

Dressed staves were imported until a few years ago. The duty is now prohibitive; duty on rough staves is $2.40 per thousand pieces.

Pickets.

The pickets commonly used in Australia are native woods. A quantity of Douglas fir pickets are imported for better class fences in front of city and suburban residences and for manufacture, particularly in the State of Victoria, into ceiling lath. A large proportion of the Douglas fir pickets imported are cut to fancy patterns before being used.

The importations of pickets have increased, though not so rapidly as the importation of other lumber products.

The increase in the importation of pickets has been as follows:—

Year.	Pieces.	Value.	Average Price per 1,000.
		$	$
1903	760,375	16,761	22
1908	1,461,725	29,635	20
1913	2,302,748	40,785	17

Three-quarters of the importations are taken by Melbourne. The division amongst the ports in 1913 was:—

Port.	Pieces.	Per cent.
Melbourne	1,754 000	76
Adelaide	520,000	23
Sydney	29,000	1

Ten years ago Canada supplied one-sixth of the pickets imported by Australia. The proportion of the trade diverted from Canada to the United States, our only competitor, has steadily increased since that date.

Imports of Pickets in 1913 by Countries.

Origin of Pickets.	Pieces.	Per cent of Total.
United States	2,302,000	100
Canada	None.	0

Pickets are purchased in lots of about 25,000 as a part of a lumber cargo. The usual specification is 4 feet 6 inches by 3 feet 1 inch. All are Douglas fir.

Buyers desire pickets so evenly cut that there will be no loss in converting them into 5-16 laths to be used on 18-inch centres. Pickets are shipped tied in bundles of ten.

This trade is likely to remain for some years approximately what it is at present.

All pickets are imported rough. The duty on pickets is $1.68 per hundred for dressed and 84 cents per hundred for rough.

Shingles.

The outlook for shingles in Australia is clearly poor. It is a land of iron, tile and slate roofs. The country districts in the early days began with bark, passed to split native woods, graduated to iron, and are, taking cheapness and ease of building into consideration, satisfied. Towns and cities began with iron, which is still used for cheaper cottages and all warehouses, and when prosperity came settled in slate and tiles.

The only districts where shingles are used to any extent are in Tasmania, where native woods are used; shingles are only rarely used for roofing in the other states.

Imports of shingles.

The shingles used are nearly all imported. Shingles are one of the few timber items in which imports have not grown. The importations have been:—

Year.	Pieces.
1903	2,786,000
1908	831,000
1913	1,527,000

One hundred per cent. of the shingles are from the United States.

In 1913 import trade returns were:—

Origin.	Shingles Imported.	Per cent.	Value.
	Pieces.		$
United States	1,527,000	100	10,598
Canada	None		None

Sydney is the chief market for shingles. The distribution of imports in 1913 was:—

State.	Shingles Imported.	Per cent.
New South Wales	1,527,000	100

In 1914 small quantities were imported to Victoria and Tasmania.

The chief reason for the United States control of the trade is that the Australian purchaser will not accept cedar shingles. An excellent example of the extent to which prejudice governs in the use of timber products is afforded by the Australian tradition that redwood shingles are superior to cedar shingles.

The redwood shingles used are 16-inch six to two clears put up five bundles to the thousand. So accustomed are the consumers to shingles five bundles to the thousand that an importer who received a sample shipment of cedar shingles put up four bundles to the thousand found that although the large bundles of cedar shingles were offered at the same price as the small bundles of redwood they would not move. The buyers declared that the large bundles were harder to handle and would not buy a bundle of 250 cedar shingles unless it was offered cheaper than a bundle containing 220 redwood shingles.

Some of the samples of cedar shingles sent down from the United States have been poorly manufactured and poorly graded and have hurt the reputation of cedar.

The same condition existed in New Zealand but one dealer in Auckland, importing a good grade of Canadian cedar shingles, was able to drive redwood out of the section of the market in which he operated. This dealer was able to demonstrate that cedar shingles are better than redwood.

If it is worth while for any Canadian shipper to do so, an opportunity exists, both for increasing the use of shingles in Australia beyond the one city where they are now used, and for introducing the use of cedar in competition with redwood.

Shingles are now used wholly for gables and in place of weather boarding. Shingles are too expensive for roofing. This fact, in conjunction with the prejudice against any type of wood roof, render any use of shingles for roofing very improbable. On account of the greater labor cost and larger quantity of lumber necessary a shingle roof costs $16.80 per square, where a tile roof costs only $10.80 and a galvanized iron $7.20.

As has been pointed out elsewhere the use of the bungalow type of construction can by education, advertising and salesmanship be increased in Australia. The persons to reach are the architects, the speculative bungalow builders and better class house owners.

Any increase in bungalow construction will mean an increase in the use of shingles.

But it will be an increase in the use of redwood shingles unless some Canadian manufacturer secures for himself aggressive representation in Sydney, and other Australian cities where trade may be developed. The trade it is true would be small, but it could easily be supplied by parcel shipments on the regular liners from the Western Canadian coast. If intelligently handled the trade would grow.

Canadian Cedar is now unknown in Australia. Its introduction in the form of shingles would undoubtedly lead to its use for other purposes.

Redwood shingles are sold f.o.b. in a grade known as export grade, at a constant price of 35 cents per bundle, five bundles to the thousand. These shingles in early 1915 retailed in Sydney at $1.80 per bundle, $9.00 per thousand. The duty is $1.20 per thousand; the freight and landing charges less than $2.50 per thousand.

At these prices a good share of the present $12,000 trade can be secured by some Canadian manufacturers willing to go to the trouble of securing good representation, ship a branded article equal in quality to the present redwood.

Doors.

Australian door imports were at no time important. The object of late years has been to import the rough stock and build up a door industry in Australia. The imports have declined greatly, as ffollows:—

Year.	Imports of Doors.	Value.	Average Value each.
	Numbers.	$	$
1903	31,341	66,777	2 13
1908	386	1,204	3 12
1309	4	4	1 20
1910	2	4	2 40
1911	230	624	2 71
1912	12,100	18,240	1 50
1913	1,400	2,112	1 50

The doors imported are chiefly from the United States. The division of trade in 1913 was:—

Country.	Doors Supplied.	Value.	Average Value.
		$	$
United States	973	1,545	1 59
Canada	436	580	1 33

In 1903, when imports were greater, the trade was divided between the United States and Sweden.

These imports include screen as well as other doors.

Tariff.

The tariff on doors now stands:—

1½″ thick and under	each.	$1 08
Over 1½″ thick and under 1¾″	"	1 44
1¾″ thick and over	"	2 04

The locally manufactured doors, made in plants which have not sufficent volume of business to justify them a full equipment of modern machinery, are not equal to the doors to which we are accustomed in Canada. Nevertheless the prices retail, in Sydney, January, 1915, were:—

Double moulded Stock pattern—4 panel.
Redwood or Douglas fir.

6′ 6″ x 2′ 6″ x 1¼″	$3 36
6′ 8″ x 2′ 8″ x 1½″	3 72
6′ 8″ x 2′ 8″ x 1¾″	4 20

Bolection moulded Stock pattern—5 panel.

6′ 8″ x 2′ 8″ x 1½″	$5 40
6′ 8″ x 2′ 8″ x 1¾″	5 64

Bolection moulded Stock pattern—5 panel.

6′ 8″ x 2′ 8″ x 1½″	$6 96
6′ 8″ x 2′ 10″ x 1½″	7 32

The doors sold at these prices are not equal in strength or finish to doors of similar specifications used in Canada.

The only possibility for door exports to Australia are for houses planned and built under architects' supervision. A few dollars extra for the doors in such a case is a matter of little importance to the builder. All the Australian architects with whom doors were discussed stated that the redwood or pine doors in use did not offer sufficient variety of treatments. They were greatly impressed with the finished samples sent out by the British Columbia Forest Branch, and agreed that if such doors could be secured upon order from Canada, within three or four months, in sets as required for residences being built, they would be freely used. They are superior to any doors in use in Australia, excepting the made-to-order ornamental cabinet woods, and afford the architect the variety of decorative trim for which he is looking.

The only possibility for door export is in this direction. This opportunity is worth following up—both for the door market and for the extra market it would furnish for Douglas fir three ply which would be in demand the interior trim in the style and standard set by the doors.

A door manufacturer with such regular shipping facilities as are offered from Vancouver should be represented in both Melbourne and Sydney by someone who will keep Douglas fir three ply doors alive before architects.

CHAPTER VI.

Canada's Position on Australian Timber Imports.

It has been evident in every important division of the lumber export trade from the North Pacific coast to Australia that Canadian transactions have been approaching the vanishing point.

The reason for this ignominious condition cannot be sought in natural conditions. So far as Native could go, Canada is equipped in such a manner as to be able to monopolize the Australian trade without restraining her resources. Millions of acres of virgin forest still stand to the water's edge along hundreds of miles of waterways and shore front plentifully supplied with harbors.

The cause for Canadian decadence in the lumber export trade must be sought in the influences affecting the channels of trade rather than in lack of the natural advantages and resources with which to maintain exports.

The extent to which the Canadian proportion of lumber exports has decreased is shown in diagrams on page 7. The discussion of various other classes of timber imports has shown that our position has similarly weakened in almost all lines of timber goods.

CAUSES FOR DECLINE OF CANADIAN TRADE.

Briefly the chief causes for the decline of Canadian trade are:—

1,—Canada has not now so great a proportion of the exporting mills as was the case in 1894.

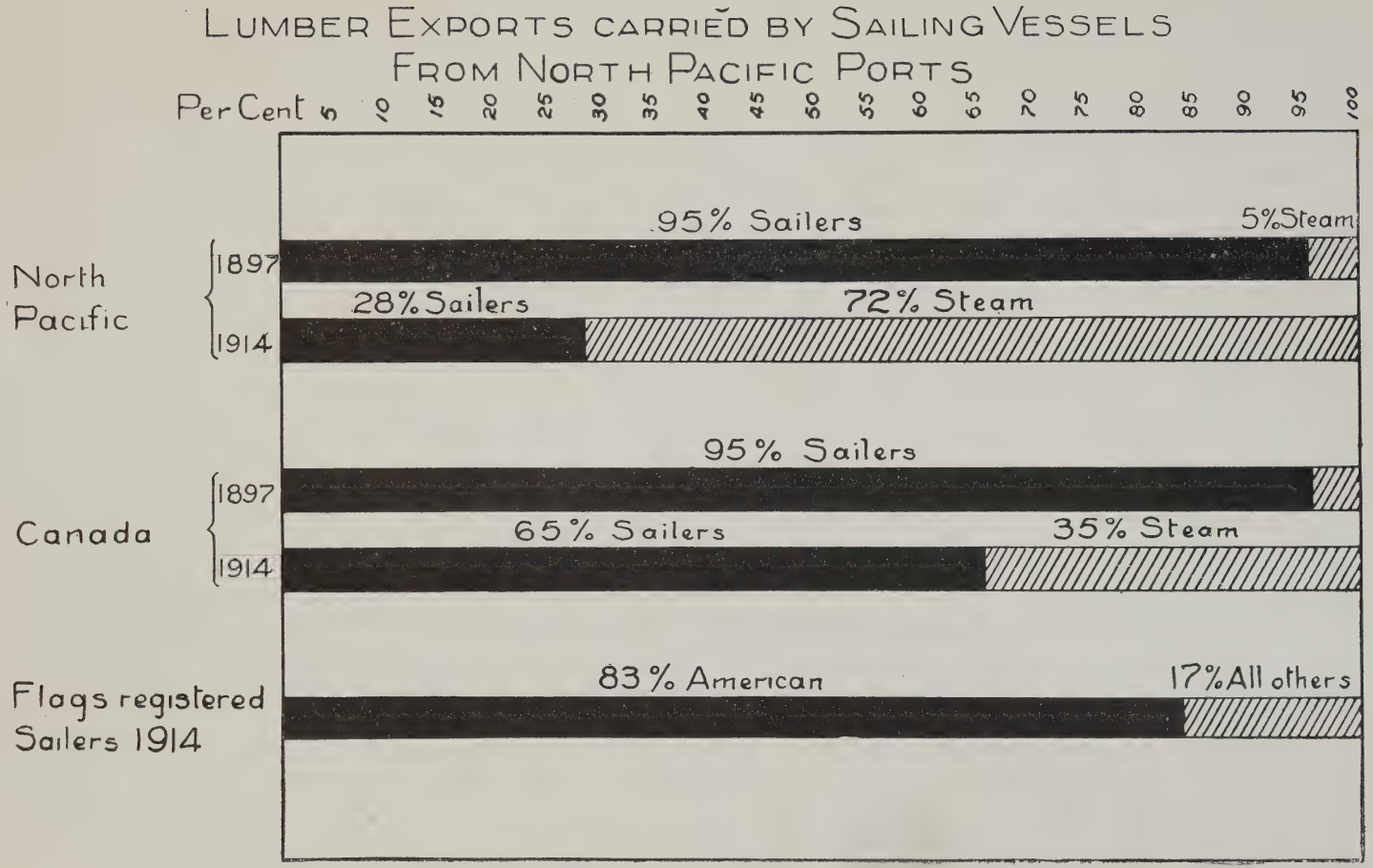
About 1894 when 35 per cent. of Australia's imports of lumber from the North Pacific came from Canada about 50 per cent. of the export lumber producing mills were in British Columbia. The more advanced development and greater population and wealth of the United States has led to a more rapid increase in export mill building in that country than in Canada. The result is that Canada now has but fifteen per cent. of the export mill capacity of the Pacific coast. It should be borne in mind, however, that this fifteen per cent., concentrated on export business, could fill all Australia's demands.

2.—Canadian mills when the export trade changed from sailers to steamers, did not keep pace with the United States mills in equipping themselves for the new type of business.

STEAMERS REPLACE SAILING VESSELS.

The export trade, when Canada did an important share of it (prior to about 1900) was almost exclusively carried on in sailing vessels. Sailing vessels in 1894 carried about 78 per cent. of all North Pacific overseas lumber equipments. Sailing vessel cargoes were small units, easily marketed. It was not beyond the ability of a sawmill company to charter sailing vessels months ahead, speculate in several trip charters and dispose of the cargoes c. i. f. Sailers were loaded at the rate of 50,000 to 150,000 feet daily, rarely the latter figure. A sawmill could take several sailers on, closely followed one another without requiring great storage space or running the risk of demurrage. Further, a whole sailing cargo was not too great a contract for the overseas purchaser who could and did buy in cargo lots.

Up to 1895 ninety-five per cent. of the lumber exports from the North Pacific coast were carried in sailers but from that date the sailer gradually passed out as a lumbrr carrier to Australia and by 1914 only 28 per cent of all the overseas business was in sailers. Australia in 1913 took nearly the whole of her imports in steamers.


LUMBER EXPORTS CARRIED BY SAILING VESSELS
FROM NORTH PACIFIC PORTS
Per Cent
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
North Pacific
1897
95% Sailers
5% Steam
1914
28% Sailers
72% Steam
Canada
1897
95% Sailers
1914
65% Sailers
35% Steam
Flags registered Sailers 1914
83% American
17% All others

Although only 28 per cent. of the Douglas fir exports from the North Pacific coast were carried in sailers in 1914, in that same year 65 per cent. of the lumber exports from Canadian mills went out by sail. The conclusion to be reached is that although the greater part of the trade is done in steamers, Canadian mills are not so well adapted for steamer business as are United States mills and therefore are so handicapped in competition that they are forced to cater to the small share of the trade still left to the sailing vessels. Australian trade may be regarded as a permanent steamer business. If Canadian mills desire to compete in Australian business, they must be able to give the same despatch as can be secured from any group of mills in the United States.

Steamers entirely changed the essentials of the business. The trip chartering of steamers was too great a contract for single mills; mills could no longer individually control the transportation of their product. Steamers loaded 200,000 to 400,000 feet per day and carried such large cargoes, 500,000 to 5,000,000 feet, that the mill could rarely take the risk of assuming responsibility for filling a complete cargo. No mill could risk attempting to fill two steamers arriving together. Further the foreign buyer could not assume responsibility for nor take delivery of a full cargo.

The mills could no longer deal direct with the Australian or other buyer; the middleman became necessary.

The middleman was necessary to make future freight arrangements, become responsible for charters, divide cargoes between neighboring or co-operating mills so as to ensure delivery, and similarly at the other end through his selling organization, distribute cargoes amongst several buyers.

Unfortunately when it became necessary that Canadian export mills should develop further organization and equip themselves to handle steamers, their attention was diverted from the export trade by the meteoric rise in the domestic lumber market. The rapid expansion of Western Canada, the equipping of half a continent, all in the space of a few years, with dwellings, towns, cities, railways and public works, more than exhausted the capacity of Canadian mills and led to the importation for a few years of large quantities of lumber.

New mills were built to meet this demand. In their building the prairie was the only market in view and no thought was given to the export trade.

Unfortunately our competitors in the Douglas fir region of the United States were free during this period with a mill capacity in excess of their domestic requirements to exploit the foreign market.

United States mills were enlarged and equipped to give steamers the despatch demanded by the owners. Mills developed in groups on the Columbia river and Puget sound, groups that could work together loading steamers of any capacity giving a despatch of 400,000 feet daily.

United States trading organisations grew up, specializing in lumber buying, lumber transportation and lumber distribution in foreign countries. These companies absolutely superseded the practise of mills engaging transportation and selling direct to the consumer c. i. f.

The Canadian domestic market for lumber has slackened to fifty per cent of what it was in 1912. The mills still exist however that were built to take care of the 1912 demand. These mills are in a bad position. They find the United States exporting companies so strongly in possession of all overseas markets that not withstanding that the British Empire took in 1914, 64 per cent of all lumber exported from the Pacific Coast, companies have their headquarters in the United States, in addition to handling all of the lumber exported from the United States, exported in 1913, 69 per cent of all lumber sent overseas from British Columbia. United States companies absolutely and completely dominate shipments from British Columbia to Australia.

The United States had organized to meet the new demands improved by steamer transportation and Canada had not.

Lumber Shipments from Canadian North Pacific Ports
1914

Canadian mills could not give despatch equal to that given in the United States. Persons responsible for charters fear demurrage in Canadian ports, and therefore prefer, when prices are equal, to place orders in those United States exporting districts where strong groups of mills co-operate in furnishing the cargo.

The mills built in boom times in British Columbia equipped for much remanufacture of lumber for the rail trade are not as economical mills in which to produce lumber for export as are many of the mills in the United States built for a greater dependence on the cargo trade.

3. Coaling arrangements are not considered by some vessel operators to be as satisfactory in Canada as in the United States.

Many steam cargo carriers undoubtedly come to Canadian ports to bunker. Nevertheless different important operators of time-chartered vessels in the lumber carrying trade were met who declared that the bunkers and mills on Puget Sound were so conveniently located for rapid despatch that prices being equal, it was more profitable to send vessels to Puget Sound to load than to British Columbia where, though coal is higher in grade, it is more expensive and involves a loss of several hours or a day in going to bunkers.

4. United States ownership of a preponderance of the lumber carrying sailers operates against Canadian interests. A proportion of 28 per cent of the lumber carried in 1913 was carried in sailers. Tasmania, and occasionally other ports, Brisbane and West and South Australia ports take sailing cargoes in normal times. In 1913, 83 per cent of the lumber carrying sailers operating from the North Pacific were under the United States flag. All United States sailers ask a freight of 60 per cent to $1.25 per thousand feet higher for loading in a Canadian than in a United States port. Such a high differential on a commodity selling at $10.00 to $12 per thousand feet f.a.s. is prohibitive.

5. Control of the low grade lumber markets and during the past ten years greater over production in the United States domestice market than in the Canadian, has resulted in United States f.a.s. prices being frequently lower than Canadian.

Australia, as constantly pointed out, takes only the high grade portion of the log. Roughly, 60 to 70 per cent of the mill product must be sold in some other market. The domestic rail market is not great enough to absorb the whole of this low grade. Nevertheless, it has been the only market available to Canadian exporters.

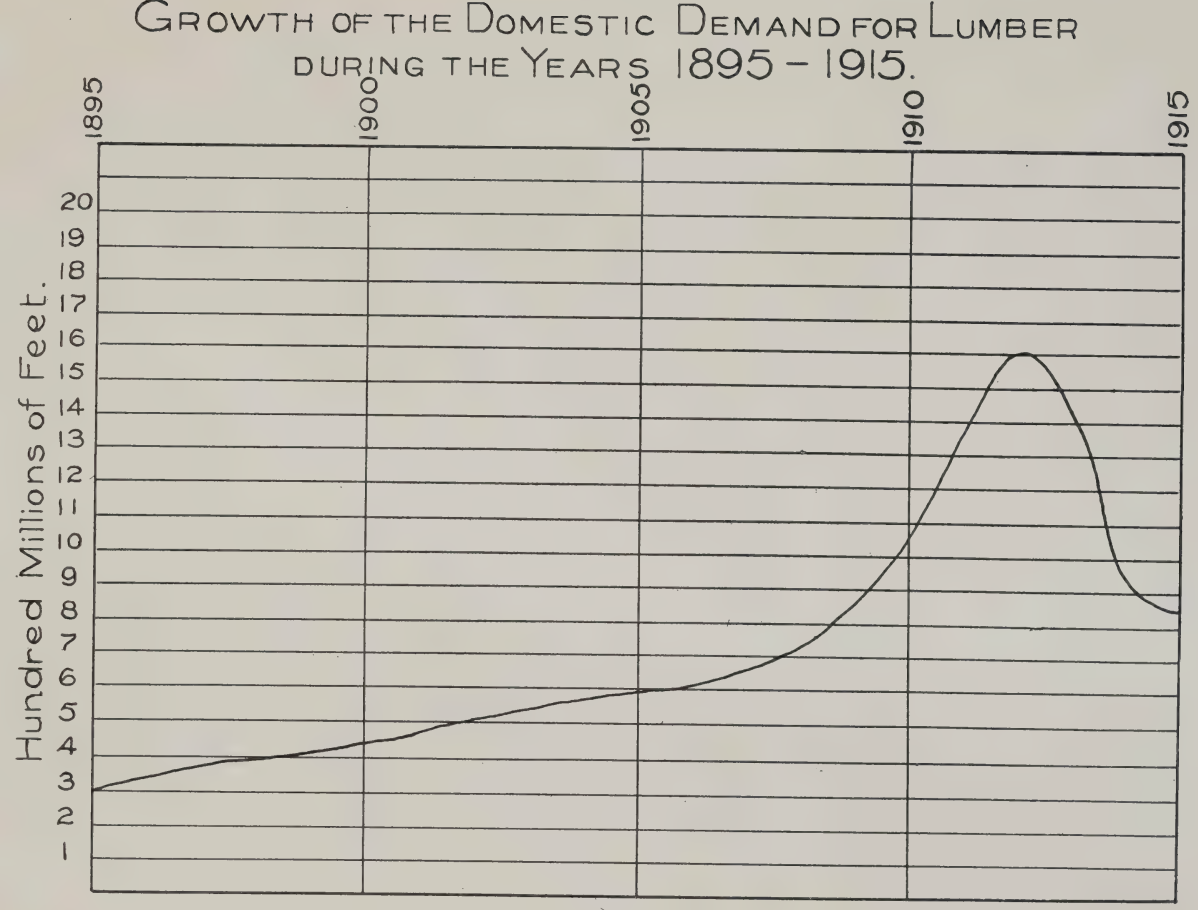
The United States is more favourably situated. United States trading companies have control of the lumber imports of South America and China. These two countries, together with California, which buys chiefly low grade, took in 1913, 78 per cent of the lumber shipped by water from the North Pacific coast. No Canadian mill participated in these shipments. The possession of these markets for low grade undoubtedly helps many United States mills in making prices for the export market.

Overproduction of lumber has been more serious in the United States during the past decade than in Canada. The competition thus brought about has frequently led to United States mills underselling Canadian in the foreign markets.

Although the likelihood is that natural causes will shortly produce proportionately as great overproduction in Canada as in the United States, and that prices in the two countries will harmonize, it has frequently been possible to secure lower prices in the United States than in Canada, which has given foreign buyers the impression that the United States is (presumably for unknown natural causes) the only market worth investigating.

6. Mixed cargoes have been easier to secure in the United States:

It has been the habit of the Australian buyers to have Douglas fir, redwood, clear pine, door stock and shelving come forward in one vessel. Canada has no redwood, and though cargoes are occasionally from Canada for which redwood or some other United States product must be secured, buyers in Australia state that when they buy a part cargo of redwood in the United States they find that the influence of the United States exporter supplying the redwood is frequently used to make sure that the remainder of the cargo also is purchased in the United States.


GROWTH OF THE DOMESTIC DEMAND FOR LUMBER
DURING THE YEARS 1895 – 1915.
1895
1900
1905
1910
1915
Hundred Millions of Feet.
20
19
18
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16
15
14
13
12
11
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1

7. Canada, so far as Australians are concerned, is passing from sight as a lumber exporting region.

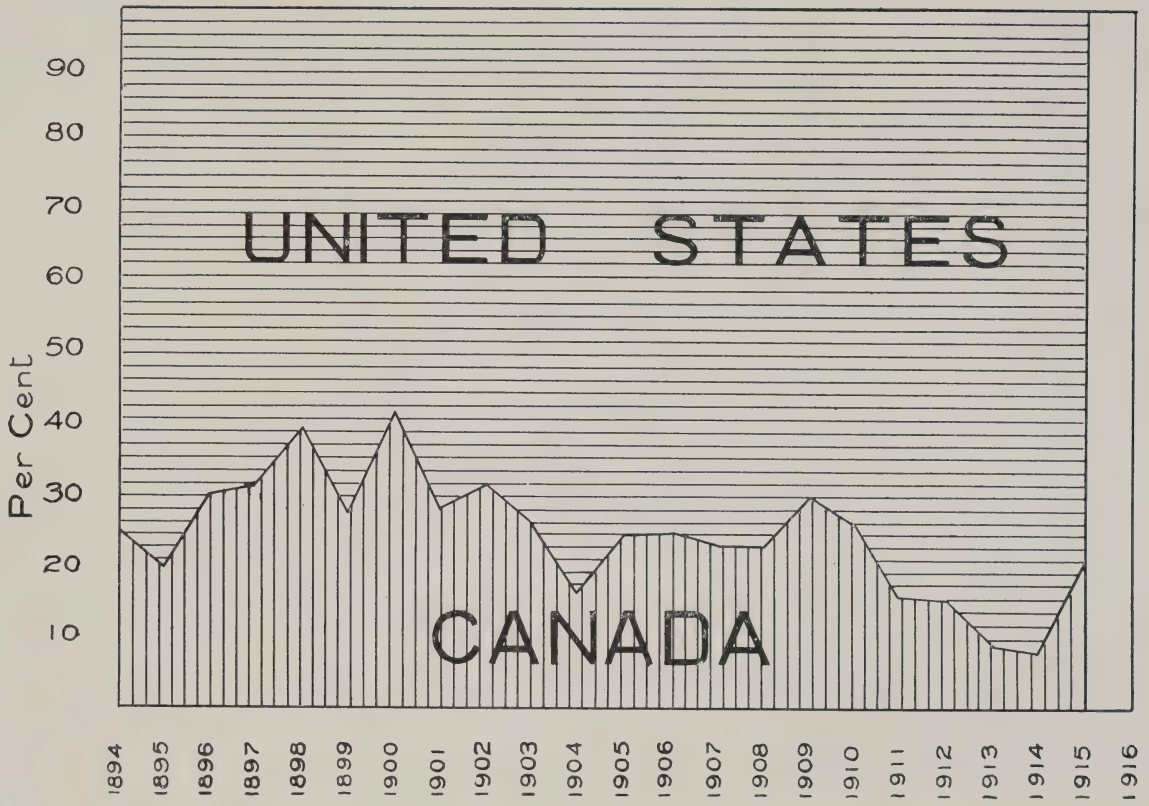
The United States has so dominated the lumber exports from the North Pacific that every buyer thinks, talks and acts in terms of United States mills, ports, trading companies and lists. Even the most of the few Canadian exports come forward on invoice forms bearing the names of United States firms. Several old and important Australian buyers did not know that the most famous Canadian mills were not in the United States, and at least one Australian owner of lumber-carrying sailors did not know that two of British Columbia's oldest lumber shipping ports, Vancouver and Chemainus, at which his vessel had loaded, were in Canada. American companies and individuals are constantly visiting the market. Canadian companies and individuals are unknown.

Australian buyers have become acquainted with, and sure of, United States shippers and products. They feel a natural hesitation about depending upon Canada, which the greater number of present Australian buyers now regard as a new source of supply.

8. Where prejudice exist against Canadian lumber no one is on hand to fight it.

A group of buyers supplying Broken Hill mines have tabooed Canadian lumber for over six years. There being no Canadian exporter represented in Australia, it was to no one's interest to find the trouble and remove it. The Americans represented were just as glad to let Canada's bad reputation stand and sell American lumber This is a fair instance of the futility of depending upon a competitor to develop and maintain the Canadian export market.

Origin of North Pacific Lumber Export to the British Empire 1894-1916



CHAPTER VII.

Future Possibilities.

The present condition, of no Australian trade for Canada, is largely the result of lack of co-operation and foresight on the part of Canadian lumber manufacturers. The present condition, unsatisfactory as it may be, will continue unless constructive action supersedes lethargy towards the export market.

The steps it is necessary to take are few:—

1. Canadian mills must be equipped and maintained to give a despatch equal quoting on inquiries of all classes. Such a group should contain at least three strong mills and preferably as many more as can be secured.

2. A group of co-operating Canadian mills must be formed to act quickly in quoting on enquiries of all classes. Such a group should contain at least three strong mills and preferably as many more as can be secured.

3. A Canadian exporting company should be built up. Canadian manufacturers will be at a disadvantage so long as they quote in the Australian market through United States exporters. Canadian lumber manufacturers should therefore give their best quotations to the first Canadian exporting firm that shows a capacity to do the business.

4. Having proceeded this far, Canadian manufacturers should co-operate with United States manufacturers to control the export market with the object of maintaining a profitable price level, adjusting the grades so that the consumer will get what he can use, and yet will take more of the log, and exploiting the market for Douglas fir and other North Pacific woods.